

# ITEMS OF INTEREST.

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## ORIGINAL COMMUNICATIONS.

### A BRIEF HISTORY OF ANESTHESIA.\*

One of the most brilliant events in the history of dentistry is the advent of anesthesia. What discovery or invention is comparable to this, by which "the knife of the surgeon is steeped in the waters of forgetfulness, and the deepest furrow in the knotted brow of agony is forever smoothed away?" to quote the poetic words of the venerable, but still youthful, author of the term anesthesia, Oliver Wendell Holmes. While there has been an ether controversy, there cannot be an anesthesia controversy. The ether controversy was waged with great earnestness and bitterness, but with the lapse of time and the removal of those directly interested, the credit is now generally given to the late Dr. Morton, a dentist of Boston. He it was who took his life in his hands, and, with sublime courage or audacity, put in jeopardy human life to solve the problem of anesthesia with ether. He traveled in darkness an unknown road; he succeeded, and demonstrated to a skeptical world anesthesia by etherization. The Massachusetts General Hospital justly and elegantly expressed the sentiments of mankind, in its inscription on the present given him, in the words: "He has become poor in a cause which has made the world his debtor."

Without detracting from the great honor due to Dr. Morton, greater honor is due to another dentist. For it is true, and is now being admitted, that Dr. Morton but traveled in another path, though further than had been traveled two years before to his own knowledge, by the true and original discoverer of anesthesia, from whom he derived his incentive, the late able, but less persevering and obstacle-overcoming dentist of Hartford, Dr. Horace Wells.

If we grant that the whole includes all parts, though one part may be so brilliant as to overshadow the others; if we grant that an inventor of something entirely new is entitled to credit superior to him who invents an improvement or modification, even though

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Extracts from Dr. L. D. Shepard's Address before the Columbian Dental Congress.

the latter may be better; if we grant that the discoverer of a great truth or principle in nature is greater than the one who, following in the same lines, by using other agents or methods, more fully or successfully demonstrates the truth or principle—we must admit that the greater honor is due to Dr. Wells—provided it is true that, in 1844, two years previous to Dr. Morton's discovery, Dr. Wells did intelligently and publicly, with full appreciation of the phenomena, perform painless operations in dentistry and surgery by the administration of nitrous oxid gas, given for that specific purpose. I think that history bearing this out is too explicit, too minute, and too reliable to render this statement debatable.

The discovery of the efficacy of chloroform in 1847, and its rapid spread over Europe to the almost total exclusion of ether, gave such fame to its discoverer, Dr. Simpson, afterward Sir James Y. Simpson, that for many years in Europe he was generally reputed to be the discoverer of anesthesia.

Ether and nitrous oxid gas had the field almost exclusively for about fifteen years, till the revival of nitrous oxid in 1862, so that most naturally the agent used and the resulting anesthesia became synonymous terms in the general understanding. It is not strange that the neglected and forgotten nitrous oxid during this long period should have had as companion in its oblivion the name and fame of Horace Wells. But its revival in 1862, and its general and successful adoption throughout the world, demonstrates that it is second to no other agent, and proves that its short use, before ether eclipsed it, was due to fortuitous circumstances in no way detracting from the merit rightfully belonging to the diffident, sensitive, generous and noble man, who so soon after, disappointed and with unsettled intellect, met his tragic death, but whose memory is still green in the field of his labors and in the hearts of his fellow-citizens.

While in the following decade, 1850 to 1860, colleges, magazines and associations multiplied and jointly contributed to bring the profession more and more in touch with progressive thoughts and truths, the most distinctive discovery of the decade, and most momentous in its influence, was that property of gold, which, previously considered detrimental, was now to be welcomed as its most valuable characteristic—cohesion. The introduction of crystal gold and the discovery of the cohesiveness of freshly annealed foil laid the foundation for the new era in operative dentistry. Let us never forget that while others claimed the latter discovery, and doubtless had known of it and availed themselves of it for some time, Dr. Robert Arthur lost no time in freely sharing his discovery, as soon as made, with the whole profession. H

thus achieved a distinction of which others have never been able to deprive him.

The descriptions and illustrations of operations with crystal gold in the essay of that venerable and respected Nestor, still with us, Dr. W. H. Dwinelle, published in 1855, might still answer for an essay of to-day. Here was the renaissance of operative dentistry. Here was the dawn of the new era of restoration; the parting line between antique mutilation and disfiguration and the subsequent devotion to beauty and typal form. It was the first great advance in practice. It was but natural that it should soon be supplemented by improved instruments, the mallet, the rubber-dam and the engine. How great a revolution has resulted from these instruments and appliances none can fully realize, except those of us who have been long enough in practice to remember the struggles necessary in the old era. However radical or conservative are the views we hold to-day, there can be no question of the tremendous shaking up of the profession in its thoughts and practice which resulted from these innovations.

While most of the appliances just mentioned came in during the decade 1860 to 1870, they do not constitute, it seems to me, the distinctive advance of that decade. There had been a disease of the mouth, which up to this time had been either unrecognized or regarded universally as incurable. It had from a remote period been described in the books as scurvy of the gums, or some such term, and had been treated only by washes or medication. It was considered inevitable and irremediable that sound teeth should be lost, self-extracted. A prophet arose who taught that such deplorable conditions were always preventable if taken in time, and frequently remediable by surgical treatment when the disease had made quite extensive inroads. He was received as prophets usually are, except by a few who early became his disciples. He was not a profound physiologist or pathologist, and did not present a theory or description which met the approval of experts; but he had lived many years, was a man of observation and reflection, and while not scholastic or correct on every point, his observations had been clear and his deductions in the main correct, so that the treatment which he was first to bring out and demonstrate is even at this day, after so many of our best pathologists have devoted much time to the study of the disease, accepted as the foundation of all treatment.

The men who knew him, saw him operate, were taught by him, and were successful in following his methods, were wont to call the disease after his name. This was not correct, we know, for he originated only a treatment and did not describe a disease; but

the fact remains, and there are enough living to testify to it, that as a result of his life and efforts, of the seed which he planted, a dire disease has been robbed of its terrors, the profession has been stimulated throughout the world to study its etiology and progress, and the premature loss of teeth from this disease is no longer considered providential or respectable.

While operative dentistry has continued to ride constantly on a flood-tide of progress and improvement, prosthetic dentistry has had its ebbs and floods. Sixty years ago the great mass of the profession were unskilled as operators, but fairly skilled as plate workers. They could not save teeth, but they could replace their loss. In plate work the culmination of prosthetic skill and artistic production came with the invention and perfection of porcelain or continuous gum. After the introduction of vulcanite, the general disuse of metals made laboratory skill of little value, and hence it was neglected or ignored in the preparatory training of the student. The manufacturers supplied a great variety of instruments, so that the forging, shaping, and tempering of instruments became almost a lost art. The ease and facility of working of vulcanite not only called for little ingenuity and skill, but so obliterated the distinctions that the novice, after a few weeks of instruction and practice, could compete with the most experienced, and this important and most beneficial branch became the refuge and ally of incompetence and quackery. The evils resulting from the wholesale extraction of good teeth were deplorable and cannot be estimated.

The increase in the number and the constant elevation of the standards of the college year by year, raised the ratio of the educated ; the periodical literature was more generally taken and read ; societies multiplied and did most valiant missionary work ; Codes of Ethics were adopted and enforced ; laws were passed for the protection of society, which, while licensing all in practice to continue practicing, irrespective of their knowledge or skill, raised a barrier against the admission to practice of the ignorant and incompetent. From all of these and other causes the tone of the profession was gradually raised, and juster and broader views of what was right and best for the patient became more prevalent.

But the cause more important than any or perhaps all of the foregoing for the increase of laboratory skill and the retention of teeth and roots is to be found in the invention of the modern artificial crown and its corollary, the bridge.

This is the distinctive improvement of the past twenty years. Within that period more than one hundred different crowns and bridges have been invented.

The result has been twofold. It has made laboratory skill of more importance and value to the dentist than ever before, and it has arrested the great "slaughter of the innocents" by making the retention of the roots of teeth in the mouth obligatory.

At various periods the separation of the two branches of practice has been urged by prominent men of each branch, but by these inventions the two branches have been bound together in bonds which seem indissoluble.

The chief drawback to perfection in the past has been the inability of our art, however skilful, to permanently save some teeth. The inherent defects of structure or of surroundings made the best operations but temporary, and these teeth had ultimately to be lost and substitutes applied. Now, after all the worst has happened, the root is still of inestimable value for crowning. This invention seems to place a climax on our art.

In recent years there has been an increasing interest in the deeper causes of physiological function and of pathological departure from normality. Histological investigations have been pursued with great enthusiasm and thoroughness, and the advances in other departments of microscopic research are largely due to methods which were first devised and employed in the study of dental tissues by ingenious dental microscopists. These fields of research are inviting to the student, but demand great courage and self-denial when cultivated by those whose labors are severe and fatiguing in the daily routine of the office. We rejoice that there are so many dentists throughout the world who are devoting their energies, after the day's work is done, to these problems.

How crude and speculative seem the theories of dental caries which obtained less than a score of years ago when contrasted with the brilliant demonstrations of the renowned American professor of Berlin, founded on patient and protracted investigation after the most approved modern scientific methods. Though from unavoidable circumstances detained at home, he has shown his interest and coöperation by forwarding a paper. There are many others whose fame is not bounded by their vocation or their country. They are known to the world as scientists and cosmopolitans. However skilful and judicious a dentist may be as an operator, this sphere of his usefulness is limited in space and not far-reaching while these men are working for mankind at large and for succeeding generations.

Let us not grudge explorers of the unknown their only recompense, the meed of praise and applause for what they have done and will do for the profession and for humanity.

## A LOCAL ANESTHETIC.

Dr. J. E. Davis, Columbus, O.

I have been a pretty thorough student of *materia medica* and chemistry, and have used and experimented with local anesthetics ever since cocaine first came to our attention, and cost about one dollar per grain. I have given many of the advertised preparations a fair trial. Some of these were Graham's, Hisey's, Odontunder, Tonalgia, Barr's, Fahlenstock's, and others. Some claim there is no cocaine in their preparation; but, of course, they simply lie if they say so. The more cocaine in a local anesthetic the more thorough will be its effect.

Graham's is the most effective I have used in my office, but not always successful. But as they asked fifty dollars for office right, and three dollars an ounce for the anesthetic, I wanted to know for certain whether or not it was better than my own compound, so I had the doctor representing Graham's anesthetic try his on one tooth in the mouth of an intelligent physician who came in to have some teeth extracted, and I tried my compound on another, and even more difficult tooth than the first, and in an entirely different part of the mouth. The verdict from the physician was slightly in my favor. It is useless to say I didn't buy an office right. I give my formula for the benefit of those who wish to use it:

Pure water.....	1 oz.
Cocain, 10 per cent.....	48 grs.
Antipyrine, 5 per cent.....	23 grs.
Menthol.....	5 grs.
Oil cloves.....	3 drops.
Ether.....	20 drops.
Glycerin.....	1 dram.

One drop analin to color red or pink, which is an advantage. Mix these thoroughly, and the ether soon dissolves the menthol. Use with hypodermic syringe.

A good way is to first apply some of the preparation to the gums with cotton pellets, then use the needle, and gradually push the point of needle to the apex of the roots of teeth. It is best to try the anesthetic first on but one tooth, and watch to see if there are any systemic effects. If there are none, go on with the other teeth if there are others to extract. Unpleasant effects are seldom felt. I have extracted as many as twenty teeth at one sitting by using the anesthetic.

Some people are very sensitive to cocaine, and this you must look out for, but one tooth will test them. There are no unpleasant after effects from the use of this anesthetic any more than without

using any, aside from the soreness that naturally comes from the thorough use of a hypodermic needle in the gums. I always recommend Extract of Hamamillis, or Pond's Extract, for a mouth wash, which usually prevents any inflammation. There is much advantage in knowing what your anesthetic is made of. Ill success will generally result from ignorance in using the needle.

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### FILLING MATERIALS.

*Dr. Gustavus North, Springville, Iowa.*

Fully two-thirds of teeth are filled with amalgam. This may seem to be a large percentage, but it is true. We have three permanent filling materials, gold, tinfoil, and amalgam; while we have gutta percha, phosphates, etc., as temporary materials, which in favorable cavities may last for years.

We must remember the hand that holds the instrument and the brain that guides and instructs the hand have much to do with the success of an operation, as well as the material employed. A cavity must be properly shaped, as well as properly filled, if success follows.

Amalgam, so often used on account of the simplicity of manipulation, often fails in proximal cavities of bicuspids and molars on account of improper shaping of the cavity. The filling must have a square, solid foundation at the base of the cavity, also slight lateral grooves cut from the base to the grinding surface. Where cavities are thus prepared, the fillings will remain without the appearance of bulging or springing from the walls of the cavity, so often seen where the base of the cavity is prepared dish-shaped, when the heavy pressure from mastication comes on them.

Gold, the preferable material, especially for the front teeth, by being a non-corrosive metal, often fails from improper preparation of the cavities. Fillings should be made so the proximal surfaces of the gold will proximate no portion of the enamel coming in contact. Even small proximal fillings with flat surfaces, where the enamel of the adjoining teeth are proximate, will soon fail.

Tinfoil, a material seldom used by the present operators for the preservation of the teeth, is no doubt one of the best filling materials employed. The only objection is that it is a corrosive metal.

After twenty-seven years' practice with the different filling materials, we quote them in order as teeth preservers: First, tinfoil; second, gold; third, amalgam.

## TREATMENT AND FILLING OF PULPLESS TEETH.

*Dr. E. E. Kirkpatrick, Oklahoma.*

1. Wash out the cavity with warm water, then apply the rubber-dam and get access to the pulp cavity, which I wash out with  $\frac{1}{1000}$  per cent bichlorid of mercury solution. After drying the cavity with heated air, fill it carefully with cotton, saturated with oil of cassia, and seal with gutta-percha. This dressing I allow to remain three or four days. It requires the greatest care in removing, as nothing must be forced through the apex.

2. I again fill the cavity with cotton, saturated in an essential oil, and seal. This dressing is also allowed to remain three or four days.

3. If, at the next examination, I am convinced that the cavity is thoroughly cleansed and free from any septic poison, I wash out the pulp canal, dry it, and flood the canal with oil of eucalyptus and dry with hot air. Then to ascertain the condition of the tooth, insert a brooch, and wipe on a piece of rubber-dam, or by odor of the pledge of cotton just removed.

4. I now fill the roots with chloro-percha, which I accomplish by filling the cavity with the solution and forcing it through the canal by placing a rubber in the cavity, causing it to act as a pump. The evidence that the canal is thoroughly filled is shown by either the complaint of the patient or by the appearance of the semi-liquid on the exterior of the tooth.

5. The tooth being now ready for filling I insert a piece of gutta-percha that will exactly fill the pulp cavity, without projecting through the appex of the root, and then fill the cavity of the tooth with cement and gold.

6. You will find that teeth so treated will be no more discolored after the operation than they were before.

A gutta-percha filling is not contaminated by the secretions of the mouth, and in this respect is superior to gold, amalgam, wood or cotton, as absorption of the roots frequently occurs, thereby exposing the dressing.

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In ITEMS of January, on page 40, under heading of "Items," you make a correction of "an error" appearing in December ITEMS, page 762, "a chief province of the liver is to produce urea."

My understanding is that such is the case, and error would exist in attributing such office to the kidneys. I take the liberty of drawing your attention to the subject.

*J. M. Nash.*

## AN ENCYSTED TUMOR.

*Dr. F. G. Corey, Council Grove, Kans.*

The patient is a miss, aged 18 years, and in good health. About August 1st, 1893, she had swelling about the lower first molar and bicuspids of right side. The enlargement was found to be within the jaw bone. This was noticed about two years previous, but the crown of the molar had been gone for a number of years. There was no pain at any time.

On referring to the American System of Dentistry, Vol. III, page 564, I found a very similar case. The cyst was filled with a honey-combed fibrous growth, and in operating it seemed to be an encysted tumor caused by the retention of two roots of the first lower molar. The enlargement extended from the first bicuspid to the wisdom tooth, and from the gingival margin of gum to and below the ordinary inferior border of the maxilla laterally about  $1\frac{1}{4}$  inches.

August 25th, 1893, W. E. Crawford, M. D., administered chloroform, and I extracted the two roots and second bicuspid; the latter to give me room to use my fingers and instruments. I then, with alveolar cutting forceps, removed a portion of the cystic wall. With my fingers and scissors I removed the greater portion of the growth, then dried and absorbed with bibulous paper, and with pliers rapped with cotton I removed as thoroughly as possible, but I was so close to the arteries I dared not clean as I wanted to, the hemorrhage preventing my seeing long at a time. I could see the arteries lying along the internal wall moving at every stroke of the heart. I closed up the cavity as nearly as possible, and stopped the hemorrhage while my patient was coming out from the anesthetic. In two days I cleansed the cavity with dilute warm alcohol, and placed in it a pellet of bibulous paper saturated with iodium and carbolic acid in alcohol, repeating this as often as the throbbing pain returned, which was every few days, sometimes every other day. In a month the cystic walls weakened, and I removed a portion very easily, the remaining became healthy. Pus still recurring I used peroxid of hydrogen, and with satisfactory results.

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At the First District Dental Society Dr. C. A. Meeker, Newark, N. J., bleached a right upper central incisor for a young lady, with a 25 per cent solution of pyrozone, using repeated blasts of air supplied by a chip-blower. The tooth was badly decayed and discolored, but after the bleaching operation and filling with cement it presented a greatly improved appearance.

## COLLAR CROWNS.

There are fakirs going about our streets selling puzzles, who call attention to their wares by crying, "All the fun you want for five cents." I have just been reading the January ITEMS, and I have had all the fun I can stand out of the article on page 18, entitled "Collar Crowns." If you ever have an attack of the blues, just read it, it will do you good. Dr. McMillen throws in unnecessary words by the handful. Dr. Patterson says, "To what extent and under what conditions," etc., and answers his question with "because." Dr. Hungerford gets up and says he don't believe it. Dr. Patterson then says he wonders why the collar crown shouldn't become a condition under which there is inflammation—perhaps if he were to lift up the condition and look under it, he would find the inflammation. And then Dr. Hungerford says that, "Kind nature absorbs the crown, and that is the end of it." Great Scott! what a sad end, but if I could only get kind nature to absorb the crowns I put on, what a pile of money I could make putting on new ones in place of those that had been absorbed!

W. A. Dixon, New York.

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EDITOR ITEMS.—In your January issue, under head of "A New Means of Mouth Lighting," Dr. W. B. Sherman says: "The medical profession is ahead of us in this respect." I beg to take exception. In the *Dental Cosmos*, November, 1892, "Electricity in Dental Practice," I mention a lamp devised by my electrician, George M. Wheeler, of this city, which is of six candle power, the bulb being one-fourth inch, and the hard rubber handle three sixteenths inch in diameter. The electric energy taken amounts to only 151 volts, so the heat is proportionately less than the one described by Dr. Sherman. The little heat evolved is taken up in an asbestos lined reflecting hood, investing the lamp on three sides.

I intend before long to give the profession a detailed result of cataphoresis or electro-medication in its obtunding and therapeutic effects on diseased conditions of the teeth and gums, and the advantages of the faradic current in neuralgic conditions; also, the diagnostic merits of galvanic currents, which is under complete control by switch board.

Albert Westlake, D.D.S., New York.

[No description of the lamp referred to is found in the *Cosmos*. And is 151 volts a very small amount?—ED. ITEMS.]

## CURRENT THOUGHTS.

### INCIDENTS CONNECTED WITH THE TRIAL OF PROFESSOR WEBSTER.

*By Dr. Lester Noble, Springfield, Mass.*

[On November 23d, 1849, Professor John W. Webster, of the Harvard Medical School, murdered Dr. George Parkman, a retired physician of Boston. The trial of Professor Webster, in March, 1850, was at that time the most noted murder trial ever held in Massachusetts. The following brief account was given at the Union Meeting of the Connecticut Valley and Connecticut State Dental Societies, held in Hartford, May, 1893, by Dr. Lester Noble, of Springfield, who, with Dr. Keep, was a witness for the prosecution:]

At the time the murder was committed I was a student in the Baltimore College of Dental Surgery, and was summoned as a witness for the prosecution. The crime was committed on Friday, in the Medical College, Boston, after the students had left. On the following Friday, Professor Webster was arrested. In the meantime he endeavored to dispose of the body; he cut it up, burned the head and large portions of the body in the laboratory furnace, hiding other parts in various places. The destruction was so effectual that the most important evidence for conviction was the identification of the artificial teeth. The question had been raised whether Dr. Keep and myself could surely identify those teeth, after they had been subjected to such a heat, as those which we had made for Dr. Parkman, and which had been worn by him. This evidence was of vital importance, for if we could not prove that the jaw and teeth were Dr. Parkman's the prosecution could not prove his death. Further, if they failed to prove the death of Dr. Parkman it was impossible to demonstrate that Dr. Webster or any one else had killed him, hence the importance of Dr. Keep's and my testimony.

At this time there was a supply of manufactured teeth on the market, yet they were all single teeth, and it was considered altogether more desirable for a dentist to manufacture the artificial teeth used in his practice if he were competent to do so.

There were found among the charred human remains in the furnace an upper and a lower set of block teeth; the gold plates were melted to nuggets, the lower teeth somewhat injured, but the full upper set in three blocks was perfect, except being slightly bent. I will now state Dr. Keep's mode of manufacturing artificial

teeth, to show how it was possible to identify them. After the plates had been fitted, and a set of teeth carved out of wax, the exact size and style required, molds were made. Everything in plaster connected with the case was carefully kept and labeled in a box by itself, and this numbered and entered in the catalog.

When the teeth were molded they were baked slightly, just enough to give them strength, and yet be easily cut with a little twist drill held by the thumb and finger. We made four or six holes in a front block of six teeth and three or four in a side block of four teeth, and they must be absolutely parallel in both directions. The enamel was then placed on, and the gum color, inside as well as outside. This was a specialty of Dr. Keep's. The teeth were again baked till properly vitrified. This accomplished, a wood cylinder was fitted to each hole, and the gold wire to be used for pins soldered on the gold plate, which fitted accurately this cylinder. With moderate pressure, the central block of six teeth would go to its exact position on the plate; the side blocks were put in place in the same manner. It may appear a difficult task to place these pins on the plate with such exactness that the block would go down without binding, but it could always be accomplished. When the set was wet or even moistened the teeth were perfectly tight; after a thorough drying they could at any time be removed.

Dr. Keep made a set of teeth for Dr. Parkman soon after I entered his office as a student. This was about a year before the advent of central air-chambers, and each plate was held in place by spiral springs attached to the artificial gum above the bicuspids by a hole drilled through the block.

With Dr. Parkman's teeth I had more than a first acquaintance. He was a very nervous man, and occasionally would take out his plates and put them in his coat-tail pocket, and soon he would forget them, and when he sat down the teeth would suffer considerably, necessitating repairs. I must have repaired those plates at least half a dozen times. The lower jaw had on the left side, the cuspid, the lateral incisor, and the root of the first bicuspid; on the right side, the cuspid and the roots of the first and second bicuspids. The gold plate went over these roots on both the right and left side and around the three teeth which were entire. All the teeth from the cuspid back on the left side were in one block, and those from the first bicuspid on the right side were also in one block. There was also the small block of three incisors. Any dentist will see that it was an extraordinary shaped plate, requiring a very unusual block to fit it. Dr. Parkman insisted on having the plate made over these roots; when Dr. Keep objected, Dr. Parkman said,

"I pay the bills; I want you to try it, and do the best you can." The lower teeth were ground on the inside to make room for his tongue, thus grinding off a portion of the gum color. I was present when Dr. Keep ground them, with an old copper cent for a wheel, and the addition of water and emery. The teeth found in the furnace fitted exactly into our molds, and they plainly showed the marks of the grinding, and the holes where the spiral springs had been inserted. Further, there was no mistaking the peculiar shade of gum color and of the enamel of the teeth made from Dr. Keep's secret recipes. There was in the Dr. George Parkman box of models, duly marked and dated, a model made from a wax impression of the lower jaw, showing the number and position of the teeth and roots which were there when the teeth were made. The charred and broken lower jaw had them in the same number and same position as the plaster model, made three years before. If there had been found just one tooth or root of a different class from those the model showed Dr. Parkman to have had, it would have been a powerful argument for the defense, but, as it was, the identification was complete. Professor Webster was convicted, and hung in the following August. Before his death he made a confession of the murder.

*International.*

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#### GUTTA-PERCHA.

*Dr. J. W. White, in Cosmos.*

Gutta-percha has been extensively used, and is still esteemed by some for special cases. One great cause, perhaps, of the difference in the estimate of its value by different practitioners is in the quality of the article used. It is liable to undergo a marked change by exposure to the air, losing its toughness and elasticity; it is then very brittle when cold, and exceedingly sticky when warm. If of good quality, it is easily made plastic by wet heat without sticking to the fingers; if it will not bear this test, it is not fit for use in taking impressions.

When of good quality, it will take a sharp and delicate impression, but is liable to change its shape when withdrawn from the mouth, its tendency being to contract very decidedly on cooling. On this account it is used by some in special cases in which the plate is liable to be loose. Various suggestions have been made to improve it as an impression-material by combining it with other substances, such as magnesia or chalk. In such combinations it becomes harder when cold, is less sticky when warm, and less liable to contract in the process of cooling. It will take slight

undereuts, and, in consequence of its elasticity, with less dragging than wax, but is apt to pass into narrow spaces between the teeth, and the force required to dislodge it injures the impression.

For taking impressions in gutta-percha, the tray should approximate the size and shape of the mouth, so as not to leave in one part more than another a superfluous thickness of the material, thus avoiding irregular contraction in cooling, and drawing or sucking in the act of withdrawing it. It should be well worked, and freed from bubbles; after which manipulation the surface should be dried and held for a few moments over a spirit-lamp, and put into a previously warmed tray. This will cause it to adhere to the tray, and so prevent withdrawal from the sides of it in cooling. If it is desired to take advantage of its property of contracting, it may be dipped again in the water when ready for the tray, which ought also to be wet and cool.

While the impression is still in the mouth, the surface of the tray may be cooled with ice, or a sponge dipped in ice-water; but, if the impression is a thin, delicate one, there is danger that the sudden cooling of one side may cause unequal contraction. Care should also be used not to make it too hard, when there are dovetail spaces between the teeth, or when the teeth themselves are wedge-shaped or conical. A little plaster batter pressed with the end of the finger into the spaces between the teeth, and allowed to set, will prevent wax or gutta-percha from entering. After the impression is taken, the plaster can be removed with an excavator. It is well to dip the impression into cold water immediately on its removal from the mouth.

One operator teaches that excellent results may be obtained by the proper manipulation of gutta-percha, which consists in dipping thin sheets of it in boiling water; taking them out on a glass rod; dipping them into cold water; then filling the tray and placing it in hot water for half a minute; dipping once more into cold water, and promptly introducing the tray into the mouth. He directs that it should remain in the mouth till it is found by testing with the finger-nail that it is just cold enough to spring back into place if moved.

No oil or other substance should be put on a gutta-percha impression before filling with plaster. To remove the impression from the plaster model, it should be put, when the plaster is hardened, into water, of a temperature from  $190^{\circ}$  to  $200^{\circ}$ , and allowed to remain till the gutta-percha is entirely softened.

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The healthy dignity of competence counts for more than the glittering absurdities of top show in dental practice.

TREATING INFECTED ROOT-CANALS WITH KALIUM  
AND NATRIUM.

*Dr. Emil Schreier, Vienna, in Columbian Congress and Discussion.*

When a tooth with gangrenous or necrotic pulp comes under treatment, the dentist is confronted with the task of removing as far as possible a gelatinous, slightly consistent mass from a capillary tube, and, this having been accomplished, to introduce into the same canal an antiseptic for purposes of disinfection. You are all aware how much time, patience, and skill are necessary for this operation. The average dentist has enough trouble in many cases in simply probing the canal with a delicate needle, not to speak of cleansing, and much less filling; he is accordingly compelled to leave out of consideration any thought of saving the tooth. Such cleansing, however, is unnecessary, if it be possible to convert the septic contents of the canal into an aseptic condition, and the operation is much simplified if it be possible to effect the transformation by the simple introduction of a nerve-needle.

My method seeks to fill the first indication by a chemical decomposition of the putrescent contents, in which the root-canal serves as a test-tube; the second indication is fulfilled in the development of a substance which is readily taken up by a nerve-needle, and sufficiently adhesive for introduction into the canal. This substance consists of kalium and natrium in a metallic state. I pierce its paraffin stopper with a nerve-needle chosen at random. You observe a delicate deposit resembling quicksilver on the needle. I now dip the needle in a glass of water; the needle describes a fiery tract therein. In the root-canal in question there exists a putrescent mass. This consists of water and the decomposition product of albumen, the latter consisting especially of fats and fatty acids.

These substances have been formed by the influence of bacteria, and serve as a culture-medium for the various species contained therein. If I now introduce my preparation into the canal with the needle, decomposition of the watery contents will occur, with development of a considerable amount of heat. Potassium and sodium hydroxids are formed, which, in combination with the fat of the pulp, form soap. The characteristic gangrenous odor is accordingly changed into a well-marked soapy smell. A portion of the alkalies possess the well-known property of rendering albumin substances soluble. Thus any remains of tissue adherent to the walls of the canal are dissolved, the latter become macerated, and access to the dentine canaliculi is possible sooner than can be

effected by any other method. Destruction of the organic contents of these canals is now possible. In consequence of such destruction the disagreeable discoloration, which too frequently occurs, will be absent, and the lime-salts of the tooth proper are in no wise injuriously affected by the treatment.

The introduction of the potassium and sodium has the additional effect of destroying the bacteria, partly by the heat produced, and partly by the new products formed. The contents of the canal have been transformed into a sterile and probably antiseptic mass, and thus the development of new colonies of bacteria is prevented. Everything has thus been accomplished which precedes permanent filling of the tooth.

#### DISCUSSION.

The question was asked if these chemically prepared needles vary in size and can be used in extremely small roots, and also if it is a painful operation.

Dr. Schreier: The operation is not painful at all, because the teeth are not sensitive.

A Member: Can you regulate the heat by the strength of the chemical preparation which you use?

Dr. Schreier: No; not at all. I can only regulate it by varying the amount of the preparation. If you take too much of the preparation it is dangerous, because it might cause an explosion.

Dr. Callahan: I have been using this preparation for some time; the heat evolved is perfectly harmless. I have tried several experiments, and have put water in the tooth and used a larger quantity of the preparation to see if it would cause any damage, but I don't think I ever injured a tooth in any way by doing so.

Dr. Custer: What is your after-treatment?

Dr. Schreier: I beg you to bear in mind that I do not recommend any further treatment, because every man may proceed with the treatment as he is accustomed to. Some fill the canal with cotton, others with oxiphosphate, while others do not fill it at all. I only wish to give you an account of my process of cleansing the canal.

Dr. Custer: I don't think you entirely understood my question. I want to know how you wash the canals after using the preparation?

Dr. Schreier: After using the preparation the canal is filled with a soapy matter as the result of the chemical action. I wash the canals with some weak solution of carbolic acid and water, so as to be sure not to carry into the canal any bacteria. For getting out all the particles of the soapy matter, I wrap a few fibers of

cotton around a broach, dampen it with water, and then revolve it rapidly in the canal, because the soapy matter is soluble in water. This procedure will quickly clean the canal.

Dr. A. H. Brockway, Brooklyn, N. Y.: I have had a little experience with this preparation, and I suppose that experience will be valuable to those who have not used it. Some weeks ago I got the preparation, and have used it in quite a number of cases, and I must say I am extremely pleased with the results. The question has been asked in regard to the danger of producing too great heat. I have not experienced any trouble from that, but in the first instance of using it I got a little pyrotechnic display by using too great a quantity and inadvertently getting a drop of water on it. It startled me, but the patient did not see it, because his mouth was covered with rubber-dam. The question has been asked, In what manner can the soapy contents of the canal be gotten rid of? My method is to use barbed instruments, but I mainly rely on hot water. Water being a solvent of the soap, the canal is thoroughly cleansed with it.

Dr. Reese: I have used the preparation since May in about a dozen cases, and the patient did not know anything about the heat developed by the chemical action. In removing the soapy contents of the canal I have used peroxid of hydrogen; after drying the canal with cotton, I put in the treatment with some oil, and leave it there for a week, then I find the canals have a cleaner feeling than by using any other method.

Dr. Schreier: It is of course very dangerous if you use too much of the preparation, because it is very explosive.

Dr. Reid, Chicago, Ill.: What is the proportion of sodium and potassium?

Dr. Schreier: It is not a fixed quantity, but usually I use two parts of sodium and one of potassium, prepared in such a manner that it will adhere to the nerve-broach.

Dr. W. B. Ames, Chicago, Ill.: I would like to know when this preparation would be used. Would it be used when the pulp had been devitalized a day or two, or when the pulp was devitalized two or three weeks previously?

Dr. Schreier: I treat it immediately after destroying the pulp, if there is insensibility. Any hemorrhage will be stopped by the introduction of the preparation.

Dr. Ames: Would this combination of sodium and potassium act the same on the blood as the pulp?

Dr. Schreier: It would.

Dr. Ames: Is there much after-inflammation?

Dr. Schreier: No; there is no soreness following

Dr. Ames: The reason why I ask this question is, I have adopted a treatment somewhat similar to this for treating putrescent pulp canals with nitrate of silver. When I want to get rid of the pulp-tissue in a canal, after using nitrate of silver, I always expect severe inflammation within a few days after the devitalization. This being a similar process, how often do you have inflammation?

Dr. Schreier: With a sore tooth I proceed in the same manner as I do with the others.

Dr. Arnold, Columbus, Ohio: If there had been absorption in the apex of the tooth, or if a blind abscess was present, would there be any difference in the process then?

Dr. Schreier: I don't make any change in the treatment; I always find the fistulous openings closing after three or four days.

Dr. Florestan Aguilar, Cadiz, Spain: I received a sample of it last September. I have used this preparation in all sorts of cases where the pulp had been devitalized for a long time, and also where the pulp had been devitalized only for two or three days, and I have used it in teeth which had abscesses, and my experience has almost always been satisfactory. In very few cases I have met with failure, but I did not blame the preparation; I think everybody has some failures in treating root-canals. I am very much pleased with the result of this preparation of sodium and potassium. I have gone a little further than Dr. Schreier in the employment of this preparation; he says he waits two or three days. I have had as good results by filling the canals immediately after cleaning them. I am always very careful in removing the rubber-dam, because if you let a little drop of the preparation fall on the cheek or gums it is apt to leave a mark on the face, which is very painful to the patient.

Dr. H. J. McKellops, St. Louis, Mo.: I am very much interested. Of course I have been many years in trying to save pulpless teeth. You can get into the upper root and the buccal root, but when you come to the anterior root what can you do? It is practice that shows me what these things amount to. When I started out to treat pulp-canals, we used creasote and I have a case of thirty-five years that is standing to-day; that tooth was treated and filled with creasote, and it was cured simply by that treatment. When you insert cotton in the canal with a broach, suppose you break the broach off. You have these things to contend with, and there is not one man in a thousand who can do all he says he can in treating these canals.

Dr. H. E. Beach, Clarksville, Tenn.: I want to indorse a feature set forth by the essayist, the necessity for the destruction of all

septic matter that is found in the tooth. His method is good. We all know there is nothing that will destroy germs more readily than fire. It seems to me that this method which has been introduced by the essayist is easy. There are so many solvents of soap, that the best way to get the saponaceous matter out of the canal is to wash the canal out. If there are some particles left in the canal you can burn them up and wash out your canals with alcohol, then dry out the alcohol, and put in your filling.

Dr. Hinkins, Chicago, Ill.: I want to say a word of caution about this compound. The caution is this, all sodium and potassium compounds are soluble in water. There is no better preparation to clean out this compound than water, as all sodium and potassium compounds are soluble init.

*Cosmos.*

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## SULFURIC ACID FOR OPENING ROOT-CANALS.\*

*J. R. Callahan, D.D.S., Cincinnati, O.*

All straight and unobstructed canals may be opened by the usual methods, but we find many canals that are constricted just at the chamber, sometimes so much so that they can scarcely be found, while the canal in the root is large and should be opened. Then there are canals in curved roots, and canals obstructed by osseous growths, which if not properly opened up would most likely cause trouble. It is with this difficult class I wish to deal.

About four years ago I began to open these difficult canals by using a twenty to fifty per cent aqueous solution of sulfuric acid, and the Donaldson root canal cleanser. My method is to saturate a pledge of cotton with the solution, and seal it in the chamber for twenty-four or forty-eight hours. Remove it, syringe the cavity with water, and dry it. The cavity will then be white and clean, with a dark spot in the vicinity of each canal, showing where the opening can be found. If a nerve broach will not enter the opening a bud drill may be used to follow the stain a short distance, and if then the small broach will not enter, we may feel justified that the canal needs no further treatment.

But if by exploring we find a canal, we carry the acid to the chamber, and with a No. 5 Donaldson cleanser, pump the acid into the opening. This will soften the walls of the canal sufficiently to allow the broach to cut its way into the root, and the acid will sterilize the canal and its contents.

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\*Abstract of a paper read before the Ohio State Dental Society, December, 1893.

When the broach reaches the end of the root a stronger resistance will be felt, as the thickened cementum seems to offer a greater resistance to the acid. The canal can be enlarged at will by using a larger broach.

Crooked or obstructed canals may thus be opened in a few minutes, and the canal left in a condition for immediate filling. The rubber-dam should always be used, and the adjoining teeth protected by placing the dam on none but the tooth being operated on. At first thought the application of so strong a solution as fifty per cent may seem heroic, but four years constant use has proved to me that there is little danger of injuring the tooth or surrounding tissue if care be exercised. We can keep the action of the acid under perfect control by having a saturated solution of bicarbonate of soda always at hand for immediate use whenever indicated. It is not probable that the acid will go through the apical foramen in sufficient quantity or strength to have any corrosive effect, for neutralizing agents in the dentine will have materially weakened the acid before it can pass through so small an opening.

Supposing an abscess to be present and the foramen enlarged as a consequence; the tissues about the apex of the root will be materially benefited by the acid, for I know of no better agent to break down diseased tissues and destroy germ life.

Prof. J. S. Cassidy in his valuable text-book, "Dental Chemistry and Materia Medica," page 77, says: "Sulfuric acid attacks the earthly portions, forming insoluble calcium sulfate and at the same time dehydrates the animal or gelatinous portion, which is mainly made up of carbon, hydrogen and oxygen. These two latter elements are withdrawn, as already alluded to, leaving the indestructible carbon as a residue, to be incorporated with the insoluble sulfate, producing thus a protecting covering to the unaffected parts beneath, against further inroads both of the causing agents and other solvents."

Mr. George Pollock, Surgeon to St. George's Hospital, says: "Dilute sulfuric acid does not affect the living, acting chemically on diseased bone alone."

Prof. Garretson says, in the treatment of "Caries of the Maxilla," he has used the ordinary officinal sulfuric acid.

"On the soft tissues the solution will have a corrosive and astringent effect; or, in other words, will break down or destroy the diseased tissue, leaving a fresh, clear field for nature to take care of herself with the assistance of milder antiseptic treatment." But, remember, what is here referred to is the officinal preparation.

## CHLORID OF METHYL.

*Maurice Roy, Paris.*

In 1888 M. Bailly, of Chambly (Oise), communicated to the Academy of Medicine a modification of the mode of employing chlorid of methyl. Instead of projecting it on the skin he had it applied on a pad formed of two layers of cotton and one of silk wadding, the whole held in place by wooden nippers. This instrument its author named *stype*; hence the name of the operation *stypage*. After having received the chlorid of methyl on the pad, he rubbed this on the skin and thus obtained the same action as with atomization, but in a more steady manner and one which permitted a more satisfactory grading of intensity. By this process one could treat the face which had not been possible with the siphon. By holding the wad in place for four or five seconds the skin whitens and hardens, and anesthesia is obtained. We can then make painlessly, punctures and incisions. If blood flows it is only necessary to place between the skin and the wad some gold-beater's skin which does not hinder the anesthetic action.

It is necessary to take care to dry the locality on which the pad is to be placed, that no particles of ice may form, and that there should be no adherence between the silk wadding and the skin. If we are going to operate on a mucous lining, that of the mouth for instance, we should take care to place a piece of fine silk stuff between the pad and the surface of the skin. The smarting sensation is more keen than the ether, and the pain following the operation is a little more prolonged.

Instead of receiving the chlorid of methyl on the pad it may be received in D'Arsonval's thermo-isolator, where it is kept liquid a long time, and we then dip the *stype* in the liquid chlorid of methyl.

In 1886 M. Galippe suggested a means of using liquid chlorid of methyl by putting it into ether; we obtain thus a veritable solution, the temperature of which varies between 40 and 50 degrees.

"The rewarming of the liquid is slow, since it requires two hours and a half to return to 0 degree.

"Chlorid of methyl in etherized solution has no caustic properties; it can be applied in the most limited space either by means of a brush or by a wool pad.

"It produces on the skin sufficient anesthesia for the performance of superficial operations.

"Applied on the gums it permits the extraction of teeth or of roots, either entirely without pain or making it very slight."

This latter point is not exactly true, especially in a case where the tooth to be taken out is surrounded by inflammation. M. Galippe says he has but rarely seen any ill effects from its use on the membrane, and when such are produced they are very slight. Ultimately our confrère modified his process. He no longer employs the chlorid of methyl in an etherized solution, but contents himself by putting it in a glass where it remains liquid a sufficient time; it is the process which we described a moment ago for *styppage*.

M. Hénocque in a communication to the Society of Biology, advised producing anesthesia by the mediate action of refrigeration on the face, along the branches of the superior or inferior maxillary, when one wished to act directly on the interior of the mouth on the ends of the nerves. It is the same advice which he gave concerning the application of atomized ether, and which we mentioned above.

What we said about the atomizing of ether is equally applicable to chlorid of methyl. We possess to-day in the latter substance, and above all in *coryl*, refrigerating agents of at least as great efficiency as ether and much more easy to use, as we shall soon learn.

*Review.*

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#### A MONSTER PETITION.

[The following is from the *Ariel*, concerning a movement by our friend Sudduth. It is a noble movement for the college in which he is a leading professor—Dean of the Dental Department—to take the initiative in arousing American colleges.]

We understand that a movement is on foot in the University to secure the signatures of the faculty and student body to the polyglot petition of the World's Women's Christian Temperance Union for the protection of the home, which is addressed to the Governments of the World. The effort has received the endorsement of President Northrop and a majority of the faculty. The petition reads as follows:

HONORED RULERS, REPRESENTATIVES AND BROTHERS: We, your petitioners, although belonging to the physically weaker sex, are strong of heart to love our homes, our native land, and the world's family of nations.

We know that clear brains and pure hearts make honest lives and happy homes, and that by these the nations prosper, and the time is brought nearer when the world shall be at peace.

We know that indulgence in alcohol and opium, and in other vices which disgrace our social life, makes misery for all the world, and most of all for us and for our children.

We know that stimulants and opiates are sold under legal guarantees which make the governments partners in the traffic, by accepting as revenue a portion of the profits, and we know with shame that they are often forced by treaty on populations, either ignorant or unwilling.

We know that the law might do much, now left undone, to raise the moral tone of society, and render vice difficult.

We have no power to prevent these great iniquities beneath which the whole world groans, but you have power to redeem the honor of the nations from an indefensible complicity.

We therefore come to you with the united voices of representative women of every land, beseeching you to raise the standard of the law to that of Christian morals, to strip away the safeguards and sanctions of the State from the drink traffic and the opium trade, and to protect our homes by the total prohibition of these curses of civilization throughout all the territory over which your government extends.

There is no politics in the movement, and no one who believes in good government, clear brains, honest lives, happy homes and a prosperous nation can refuse to sign this prayer to the rulers of the world. The petition has already been signed by over 1,500,000 persons, and it is expected that before another year rolls round that it will have reached 10,000,000, when it is proposed that Lady Henry Somerset and Frances Willard will carry the monster petition (already the largest ever known) to all the governments of the world. There has never been heretofore any concerted action on the part of colleges, although many teachers and students have signed the petition.

To the University of Minnesota therefore belongs the credit of inaugurating the movement. Let there be a general interest in the subject, and start the ball rolling in a manner that will give a real impetus to the effort to secure signatures in all the colleges and universities in this country. Margaret A. Sudduth, sister to Dean Sudduth, and who occupies the position of managing editor of the *Union Signal*, the official organ of the World's Women's Christian Temperance Union, of Chicago (circulation over 80,000), agrees to give us full credit for initiating the movement. Minnesota to the front in this movement as in the pennant.

[Every such movement will make the world, and those who promote it, better.—ED. ITEMS.]

## HOW TO WRITE.

A profession is often judged largely by the kind of literature it makes, and as practitioners of dentistry we should seek to make our literature such that it will reflect credit on us as a profession. It is perhaps true that a scientific investigator is not always a ready writer, and yet we are inclined to the belief that the art of clearly and concisely expressing our thoughts on paper is largely a subject of cultivation. It has been said that a clear thinker is always a lucid writer, but we are scarcely prepared to accept this.

We have known men whose minds were well trained and who were close thinkers—men who could express themselves clearly, definitely, and readily in conversation, but who, the moment they took up the pen, began to flounder laboriously in trying to give expression to their thoughts. We know of no other acquirement in which the adage, "practice makes perfect," holds so true as in this. We have heard dentists demur and excuse themselves from writing papers for journals on account of the fact that they were unable to "dash off an article like other men." We are tempted to say this is all nonsense. Men whose articles read smoothly do not "dash off" their work. We recently heard a suggestive remark from a writer whose articles are read with delight and appreciation by all who come in contact with them. In laying out some future work and allotting time for this and that article, he hesitated a moment, and corrugating his brow in a distressed manner, remarked to us: "Writing is so painfully slow and labored with me!" Here was a revelation. To read that man's articles one would imagine that the sentences slipped from the end of his pen by some sort of subtle inspiration that made writing mere child's play for him. His thoughts flow along on the printed page as smoothly as a purling river rippling over shining pebbles on its journey to the sea. The ideas are clear, concise and consecutive—there is never a word too much or too little, and every word is in its proper place.

When we contrasted this man's work with some of the articles we see by members of the profession who are probably proficient enough as practitioners, but whose MS. is "slung together" as slouchily as the garments of a seedy tramp, we were more than ever impressed with the truth of the statement that "easy writing makes difficult reading."

It is true that some men are naturally more proficient with the pen than others, but we believe that no man of ordinary education—and all men may be possessed of that in this age—need fail of a

lucid expression of his thoughts if he takes sufficient pains with his MS. The rising generation of dentists should lay this more to heart than they do, for it is to them that the profession must look for its literature in the future. For those who have the ambition to write for their profession, but who yet lack the facility to do so with credit, we have the advice of one of the most eminent literary men of this continent: "Practice, practice, practice."

Every article that a young man writes makes the next one so much easier for him. The first draft of a paper may be discouraging on account of mistakes and awkward phraseology, but this is not necessarily an obstacle to ultimate success. Some of our very best writers make sad havoc of their first copy. The fact is, nearly every article on any topic requiring deep thought requires to be rewritten. Concentration of the mind on the subject itself sometimes results in faulty construction. The effort to evolve the thought often leads to laxity in its mode of expression. When the thoughts are once summarized and on paper, it is the duty of every writer to carefully revise his work and make it read smoothly. Then as a last precaution the MS. should be placed out of sight in a pigeon hole, and allowed to rest for as long a time as is practicable, till the author has dispelled the atmosphere that "was wrapped 'round him" while he was writing it. He can then examine his article in the light of an ordinary reader, and is well nigh sure to discover crudities which in the first flush of its composition had escaped him.

A single point more—out of a dozen others that might profitably be touched on if we were writing outside of the limitations of an editorial. Study simplicity of style above all things else. The greatest literature of the world—that which has lived the longest—is that which contains the simplest modes of expression. High-flown, stilted phraseology is too often employed to cloak a scarcity of ideas, and while big words have their legitimate place in literature, they were never created for the purpose of allowing immature writers the opportunity of indulging in a series of linguistic gymnastics.

*Ed. Review.*

#### ANCIENT DENTISTRY.

At the Peabody Museum, at Cambridge, there is a collection of archeological treasures, recently found in Central America, that have special interest to the dental profession. These consist of crania, parts of the skeleton, a collection of teeth curiously filed and inlaid, with a fine collection of pottery and instruments which were made from bone, stone, and from a volcanic glass, obsidian,

together with carvings and statues. The teeth that were found at Copan, are perhaps more interesting than the skull. Many of these have small circular pieces of green jade inlaid in a cavity that has been drilled by a stone or glass instrument in the face of the incisors or cuspids. These inlays are a little more than an eighth of an inch in diameter, the outer surface is rounded and brightly polished, and as perfectly fitted as it could be by the most skilled operator of to-day, with all the modern instruments at his command. In a few of the teeth the inlays have loosened so that it can be taken out, and there appears to be a white substance, perhaps a cement, between the inlay and the tooth, used to hold the inlay in place. It would seem that this inlay might be some mark of distinction, perhaps used in the mouth of a chief or head man of the people. Some of these teeth are filed and have no inlay. Some are inlaid and not filed. And some are both filed and inlaid. Quite a number of the teeth are badly decayed. Much of this decay appears to be at the cervical border, and there does not appear to be any filling of any kind used to stop decay. None of them were filled for prophylactic purposes. In the teeth from skeleton 8, mound 36, found at Copan, two of the teeth that may have formerly had an inlay were partially filled with something that seemed like a red substance. None of these from this skeleton were filed; but in the lower jaw of the skeleton was found the most interesting curiosity in the whole collection to dentists—a lower, left, lateral incisor that had been carved from some dark stone, and which had been implanted to take the place of one that had been lost. The tartar on it would seem to show that it had been worn for some time during life. This implantation antedates Dr. Younger's experiments by about fifteen hundred years. Many of the teeth were so completely covered with tartar as to form masses nearly double their original size; and in one case an upper molar had the tartar deposited in such a way, and to such a degree, that it formed a shape that articulated on the gum of the lower jaw, where the teeth had previously been lost. In one case, at least, the drilling of the tooth to produce a cavity in which to fit the inlay had encroached on the pulp, and there is distinct evidence of recalcification of pulp tissue at this point.

The whole collection is one of much interest, perhaps the most interesting evidence of prehistoric dental work that is to be found in any museum, and is well worth a visit to Cambridge to see. They are suggestive of what the prehistoric inhabitants of this hemisphere were.

*R. R. Andrews, in International.*

Capability as a counter-irritant for bad business is beneficial.

## TREATMENT OF PULPS.

*Dr. A. W. Harlan.*

When the pulp is exposed by accident, the pain is easily relieved by protecting it from the air or moisture with chloral camphor, phenol camphor, oleat of cocaine, melted carbolic acid or other local anesthetic. The surface should be dried, if possible, before making the application. A mixture of collodion and carbolic acid, 10 or 20 per cent, will serve as a temporary dressing. Twenty parts of carbolic acid, five parts of the hydrochlorat of cocaine and seventy-five parts of liquid vaselin will arrest pain from exposure of the pulp. I have frequently used twenty parts of a four per cent solution of cocaine, thirty parts of pure oil of sassafras and fifty parts of melted carbolic acid as a local covering. This is only slightly caustic or escharotic. The bottle should be shaken before using when the mixture is fresh. The pain from a hyperemic pulp is quickly relieved by puncture, when possible; if not, torsion will sometimes relieve the pain. Remedies administered internally for retarding the circulation will seldom be effective in relieving the hyperemic condition. Sometimes when torsion is practiced the addition of counterirritation may relieve the pain. When the pulp of a tooth has been capped with any material before it is in a normal condition, there may be pain continuous or intermittent. Should this continue in spite of torsion or counter-irritation the filling must be removed. Even this will not always relieve the pain, and the pulp may have to be destroyed before the pain will cease. A pulp should not be capped when irritated or inflamed, but many pulps are capped in this condition, and the only salvation for them is to remove the capping.

The pain from congestion of the pulp and the formation of pus in its substance can only be relieved by getting direct access to it and pricking it to relieve the overful vessels. After the tension has been relieved the pain does not always cease. It has been a favorite method with me to wash the cavity with peroxid of hydrogen at once and quickly dry the cavity; apply pure chloroform on cotton, then melted carbolic acid. In five or ten minutes the patient will be comfortable. It is my theory to destroy the pulp if there is no probability of saving it. I might attempt to coax it back to health if it were an exposed front tooth in a young person's mouth, but it is difficult to retain the vitality of a pulp after suppuration of a small portion of its substance. The mere puncturing of a pulp with a sharp pointed instrument to relieve congestion or hyperemia will not generally destroy a pulp unless the vital powers are low, or the patient is past fifty years of age.

*Review.*

## THE ANGLE SYSTEM OF REGULATION AND RETENTION.\*

*Dr. Henry W. Morgan, Nashville, Tenn.*

After some years of experience with the various methods for the correction of irregularities, and a careful comparison of results, time consumed, pain inflicted, cleanliness, and effectiveness, I have been recently led to make some experiments with what is known as the "Angle System of Regulation and Retention," with such gratifying success that I am encouraged to call your attention to it.

I shall not attempt to defend the originality of the system, nor shall I presume to give a description of the method and appliances, taking it for granted you are all in possession of the little work published by The Wilmington Dental Manufacturing Company (cost seventy-five cents, paper cover); also, that you are familiar with the appearances of the fixtures as parts, as they are on sale at every dental depot, thus enabling any one with but little skill and in a short time to construct almost any device desired. To the busy dentist this is a great labor and time-saving factor in the production of a regulating appliance.

Bands, levers, push and pull screws, rotating levers, etc., are easily soldered together, and with cement to firmly fix them in place, teeth are easily and quickly pushed, pulled, rotated, or held in place.

This variety of an appliance is to be preferred from a hygienic standpoint to those made of vulcanized rubber, covering as they often do two-thirds of the teeth in the mouth, which are kept constantly bathed in a vitiated saliva, and covered with a mass of decomposed mucous epithelium and food—sometimes adjusted to be removed once or twice a week, or less, by the dentist. Whenever an appliance of this variety is used it should be so constructed that the patient could remove it after each meal, that not only the appliance, but the mouth and teeth also can be properly cleansed.

To be able to properly cleanse the mouth, teeth and fixture, without disturbing or without its removal is a great gain, and relieves the patient of numerous visits and saves the dentist much time; while with an intelligent patient, where the screw is used steady and gentle pressure is kept up with a wrench by the patient, twice a week is as often as it is necessary for the patient to be seen for comparison of the mouth with the casts made before beginning.

The band material is but .004 of an inch thick, and therefore

injury to the teeth is avoided and their appearance is not marred in adjusting the fixture.

Firmly cemented bands at both ends give a positive pressure at the point where it is desired and a positive resistance at the opposite end of attachment—two elements of great value, the latter being almost entirely wanting in regulating appliances of the old style.

These have done much good, and have proved efficient in our hands and those of many others, some of whom have become quite expert in their use—but all of us have met with an occasional disastrous failure, owing to the inability to control the patient and keep the fixture in place. When cemented in, these Angle fixtures are the least objectionable to patients of any we have used. They are easily kept clean, not bad in appearance, and are there to stay. The pressure should be gentle, gradual and constant, but never severe.

Of two cases recently in our hands—one, a superior lateral closing inside the lower teeth, was forced to its natural position in four days. The second case required the expansion of the upper first molars to force them to close over the under molars. Bands were cemented on and in two weeks they were where it was desired.

We commend the system and appliance as the simplest, easiest constructed, most cleanly, least painful, and most satisfactory we have ever used. We do not claim that it is the best suited to all cases, but believe there are few in which it will prove unsuccessful.

*Dental Headlight.*

The metric nomenclature is coming into such common use, especially in scientific articles, that the following formulas will be found valuable:

WEIGHT EQUIVALENTS.

To convert grains into grams, multiply by.....	0.065
To convert grams into grains, multiply by.....	15.5
To convert drams into grams, multiply by.....	3.9
To convert ounces (avoird.) into grams, multiply by.....	28.4
To convert pounds (avoird.) into grams, multiply by.....	453.6

MEASURE EQUIVALENTS.

To convert cubic centimeters into grains, multiply by.....	15.5
To convert cubic centimeters into drams, multiply by.....	0.26
To convert cubic centimeters into ounces (avoird.), multiply by	0.036
To convert pints into cubic centimeters, multiply by.....	473.
To convert liters into ounces (avoird.), multiply by.....	35.3
To convert gallons into liters, multiply by.....	3.8

*Scientific American.*

## MODELING COMPOSITION.

This material is composed of gum copal, stearin and French chalk. It is made in several grades, designated as soft, medium, hard and extra soft. The soft is for use in cold weather and in tender mouths, as after the recent extraction of teeth. It softens at a low temperature, and is slow in hardening. The medium is adapted to general use, requires a higher temperature to soften, and sets quicker than the soft. The hard is designed for use in warm weather, and requires a still higher temperature to soften it. The extra soft is used for mixing with any other grade where a modification of its qualities is desired.

Modeling composition of a good quality takes a very sharp impression, and is adapted to cases of irregularly-placed, wedge-shaped or bell-crowned teeth, or where the teeth incline inward, or of overhanging ridge; its elasticity at some stages of cooling causing it to regain its original form after displacement in the act of withdrawal. By judicious manipulation it can be made serviceable in displacing soft tissues where such a result is desired.

The general directions as to the employment of wax are applicable to the use of modeling composition, and trays such as are adapted for taking impressions in wax are suitable also for use with this material.

The directions for its use are to bring water to the boiling point in an open vessel; remove from over the flame and put in the composition, which, when soft, take out with a spatula or spoon, and knead with wet hands into shape to fit the impression-tray, which should be previously warmed. Pass through the flame to glaze the surface, and place at once in the mouth. Hold steady a half minute; push the lips and cheeks in firmly, and with the finger in the mouth press against the palatal or lingual parts. When properly cooled—the time depending on the grade used—carefully remove from the mouth and plunge into cold water, allowing it to remain there till hard.

To determine when the impression should be removed requires some experience and judgment. A test of its condition may be obtained by pressing the thumb or finger-nail into any protruding portion, and observing the character of the response.

The whole secret of the successful manipulation of modeling composition lies in working it at such a degree of softness as will carry it beyond its contractile condition, and making discriminating use of its elastic properties.

*Dr. J. W. White, in Cosmos.*

The "dear public" clings to a kind dentist.

## TRICHLORACETIC ACID.

Trichloracetic acid is having such success that I must say a word about it. Where you have a spongy condition of the gums you desire to remove, or a growth over a third molar, or any condition of that kind, it is the most appropriate application that can be made, by simply taking a little wooden spatula, saturating it, and rubbing it over the tissue. It is a powerful escharotic, and in one or two applications you will remove the abnormal growth. Again, where you have the little nodules of calcific deposit on the roots of the teeth, with the same little wooden spatula you pass down into the apex and cleanse the surface of these roots. Wherever we have calcific deposits, we use this acid, even in its full strength, in that way. It cleans the root thoroughly. After you have used your sealers, use this, and it will remove every vestige of the calcic deposit. Then, again, it has a very happy result on the tissues themselves. Being a powerful escharotic and astringent, you will find that an application into the pocket will arrest the accumulation of pus that is so common, with one or two applications. I have had very desirable results from its careful use in pyorrhea. If I open into the root of a tooth, I dress the pulp by taking a little circular spatula and forcing it up into the root; the acid will destroy the tissue and purify the root in a moment, more perfectly than you can with carbolic acid.

*Dr. Peirce, in International.*

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C. E. BENTLEY ON PYROZONE AS A BLEACHER OF DISCOLORED TEETH.—I have been using pyrozone as a bleacher of teeth; not with the atomizer, as recommended by Dr. Rhein, but with an instrument that has a rubber cylinder and copper bulb, and a point extending from the bulb. By heating the copper bulb, it will expand the medicine in the rubber cylinder, causing a very fine spray to come from the needle. It occurred to me recently, after using pyrozone, that it would be a useful instrument to drive the molecules of pyrozone into the tubuli, thereby bleaching the compounds that are in these small canals. I have used pyrozone for bleaching teeth, with this instrument, as many as four times since the Congress, and I have been surprised with my results. After adjusting the dam and scraping away the decalcified dentine, I used pyrozone for at least twenty minutes, and to my astonishment, and to the satisfaction of the patient, it bleached it successfully. I filled the tooth for the time being with cement, awaiting results.

*Review.*

## INTERESTING.

A young lady, about seventeen years of age, called for treatment. She was suffering from severe pain in the region of the right superior lateral incisor. In her own words, "suffering from neuralgia in the front teeth on the right side," and wished the lateral incisor extracted, as it was loose and had caused her trouble enough. We found the teeth in remarkably good condition for a girl of this age, excepting the tooth mentioned, it being slightly loosened; we also found a slight bluish line running through the gum over the root of this tooth and part way across the adjoining central incisor. We learned from her mother that about five years previous to her visit she fell, striking the gum here with the point of a lead-pencil, but both the girl and her mother, in response to our questions, felt sure that the pencil was all drawn out at the time. But we found the lower border of the process absorbed over the root of the lateral incisor, and a small piece of the pencil lying directly over the root; also another piece, possibly a quarter of an inch in length, that had been forced endwise between the central and lateral incisors. It was so tightly imbedded that we did not remove it in one piece, but found it was necessary to dissect it out, a small piece at a time. The wound was then dressed and the patient dismissed. She was not heard from for several weeks, when the report was made that the "loose tooth had grown tight and the neuralgia had disappeared."

*International.*

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A USEFUL HINT.—I replaced a contour filling in my own mouth several years ago by the following method, and the filling is still intact, though it is a central incisor, with but little chance for retaining grooves: I put on rubber-dam, cleaned the cavity well and partly filled with thin cement, pressing the old gold filling in place, and left till thoroughly set. Since trying the one in my own mouth, I have replaced others and find them very durable. Sometimes it happens that a large contour gold filling may be displaced in the finishing up process, which is certainly very discouraging to a dentist after hours of hard work and use of much gold. Sometimes they may be cemented into place, and be fully as durable as if they had never been displaced. As the gold exactly fits the cavity, no line of cement is seen. And the work is much more perfect than any other kind of inlay can be; and what a world of work it sometimes saves, to say nothing of the gold required in refilling.

*J. E. Davis, B.S., D.D.S., Columbus, O.*

## DENTAL LEGISLATION.

Dr. F. D. Hodgkin, on "Dental Legislation," says in the January *Cosmos*: In the September (1893) number of the *Dental Cosmos*, p. 1084, I read an excellent resolution formed by the National Association of Dental Examiners at its session in Chicago. It reads thus: "*Resolved*, That it is the sense of the National Association of Dental Examiners, that when a member of the dental profession presents a certificate of registration from a State Board of Dental Examiners, duly created by law, that the same should entitle the holder of such certificate to registration, without an additional examination, in any State of the Union having a law to regulate the practice of dentistry;" and the amendment of Dr. Smith is excellent: "*Provided*, such certificate was obtained on examination."

I am glad that the dental law is getting on a unit basis, for "Where there is unity there is strength." I read to-day in the ITEMS OF INTEREST, from the pen of Dr. D. D. Atkinson, that "when a person shall have obtained a license from a State Board, he should then be admitted to practice in any State without further examination." Further he says. "A person who is really competent to practice in one State is equally so in any other State." I agree with the doctor, provided the person has obtained a certificate on examination from a State Board "duly created by law" for, as he says, "Dental laws, like all others, are not retroactive, and as, in many States, newly-created boards are required to license all who are practicing at the time of the enactment of the law, regardless of fitness or qualification, it is clear that a State license, in itself, is not evidence that a person is really competent to practice dentistry, and it would not be proper to require other States to accept him on that ground." Now it is clear that the amendment of Dr. C. S. Smith would govern the case mentioned above by Dr. D. D. Atkinson.

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Where an aseptic condition of root-canals and dentine exists, and immediate root-filling is to be practiced, the use of coagulants, such as carbolic acid or creasote, alone or in combination with other suitable agents, is permissible; but when sepsis exists, their use is contra-indicated in favor of non-coagulants; that treatment with such agents should be followed, and the filling of the root be temporarily deferred. If abscess exists, treatment through the apical foramen, by injection, should be restricted to the use of non-coagulants, till disinfection of the dentine is effected.

There is such a thing as over-treatment—an unnecessarily frequent renewal of antiseptic dressing in root-canals, thereby

aggravating or producing irritation of the pericementum at the apex of the root. Such cases may be relieved by washing out the canal with alcohol and applying the alcohol on the dressing, instead of the agents previously employed.

*Cosmos.*

**BRAINS IN SEX.**—The popular fallacy that a woman's brain power is not equal to a man's because of its smaller size, is illustrated in an amusing little account taken from a German paper by the *British Medical Journal*. Prof. L. Bischoff, the late distinguished physiologist of Munich, was a profound believer in woman's mental inferiority, and devoted much time to making researches to substantiate this claim. As a result of his labors it was given out that while the average weight of man's brain was 1,350 grains, woman's brain was smaller by 100 grains. But alas for the professor's theories and calculations! On his death it was ascertained that his own brain weighed only 1,245 grains, 5 grains less than that of the average woman's. If the shades of the departed ever return to this terrestrial sphere, it would seem probable that the brainy professor could hardly rest in peace till the world had been offered some explanation of this extraordinary phenomenon.

*Woman's Herald.*

**FITTING BANDS TO ROOTS.**—Slight imperfections of this band are probably present oftener than most crown makers imagine, and every precaution should be taken to avoid them. A good practice to follow when the crown is finally adjusted is to go around the lower margin of the band with a burnisher, or, what is better, where it can be used, a plugger point, and gently tap the edge of the band to the snuggest possible fit. It will sometimes be found that the extreme edge of the band will yield slightly under the force of the plugger and hug the root of the tooth a hair's-breadth closer, even when it has been supposed that the best possible fit had previously been obtained. The gain of even the thickness of a piece of note paper in the close adaptation of a band to a root may mean much in the final outcome of the operation.

Colonel Henry M. Porter, Chief Solicitor of the American Bank Note Company for many years, and a man well known in clubs and society, was removed to-day to a retreat for the insane, and there is little hope of his recovery. His condition is in part due to alcoholism and the excessive use of tobacco, which have brought on paresis. Colonel Porter has no children. His wife, who has the sympathy of a large circle of friends, was Miss Nina Fremont, the adopted daughter of the late General John C. Fremont.

## OUR QUESTION BOX.

With Replies From The Best Dental Authorities.

[Address all Questions for this Department to Dr. E. N. Francis, Uvalde, Texas.]

**Question 139.** (a) *What is the best and safest practice in extracting: The use of gas, vitalized air, narcotized air, or some of the various cocaine compounds used by injection?*

(b) *With what drug, and in what proportion should cocaine be combined to prevent subsequent destruction of tissue when used hypodermically for painless extraction?*

(a) Gas.

(b) A 20 per cent solution of listerin has given me the best satisfaction.

*T. H. Ellsworth, Wellsville, N. Y.*

(a) I think gas the safest. I have had the most experience with it. I have no faith in cocaine. In using the latter patients appear to feel pain, but claim it relieves it to some extent.

*Dr. H. S. Abendschein, Baltimore, Md.*

For twelve years I gave one hundred gallons of gas per month, and considered it safe. For the past year I have used one of the so-called patent nostrums with good results, and am still using it. I tried one of the formulas given in August number of *Ohio Journal*, and had several bad cases of sloughing.

*J. H. Collins, Granville, N. Y.*

(a) During the past forty years I have experimented with nearly every remedy recommended for painless extraction of teeth, and have discarded all except chloroform, and use that but seldom. A definite knowledge of the anatomy of teeth and their sockets; the use of forceps suitably shaped and well tempered, is the best and safest practice.

(b) It is questionable if any drug added to cocaine will prevent detrimental effect on tissue, therefore I advise discarding the remedy.

*B. F. Arrington, Goldsboro, N. C.*

(a) Where many full length teeth are to be extracted I use gas. I see no advantage in using chloroform or ether in combination with the gas. Where teeth or roots are very short, I, for convenience, use large crystals of muriate of cocaine, without admixture with anything else. Following this course I have never had a case of sore mouth, and as to safety, I have no choice between gas and large crystals muriate of cocaine.

(b) I have no confidence in any formula for combining cocaine with other drugs for hypodermic injection.

*W. E. Driscoll, Manatee, Fla.*

I consider gas the safest, and less liable to cause bad after effects. In my early practice I used the following, and never had any subsequent destruction of tissue: Hydrochlorate cocaine, 2½ grains; carbolic acid, 3 drops; distilled water, 1 ounce. Inject 10 drops. In my experience, cocaine has proved treacherous when used hypodermically in deep tissue, causing dangerous symptoms when least expected. I now use antiseptic solution of carbolic acid and water, 5, 10, or 15 drops to 1 ounce of water, obtaining about as good results as with cocaine, and avoiding the danger. Inject the tissue

surrounding the tooth till thoroughly blanched, and you will have very little pain in any operation.

*Ira B. Archer, San Juan, Cal.*

**Question 140.** *Two years ago I commenced treating an abscessed upper left lateral, using peroxid of hydrogen followed with iodoform boiled in glycerin. After six weeks, without improvement, the tooth was extracted. Subsequently the right lateral suffered the same fate, and a close fitting bridge was inserted. Now the old fistula, opposite the space of left lateral, has opened and discharges continually. I am washing it every third day with peroxid of hydrogen, followed with listerin. What shall I do?*

Look for diseased bone.

*J. H. Collins.*

A case of necrosis. Treat accordingly.

*F. H. Ellsworth.*

Remove dead bone if it can be detected. Apply commercial sulfuric acid, one part to ten of water, followed by injection of water hot as can be endured. In two or three days repeat treatment, if necessary, and finish with phenol sodique.

*W. E. Driscoll.*

Diseased bone must be the cause of the trouble. Probe to determine its presence, and remove it as best you can, fearlessly and effectively, then apply sulfuric acid (diluted one to five) twice daily, for two or three days, and follow with campho-phenique till cure is effected. Six or eight days' treatment may be necessary.

*B. F. Arrington.*

The question is obscure, not knowing the nature of surrounding tissue or odor of pus discharged. Perhaps you have a case of necrosis of the alveolar process. If so, enlarge the fistulous canal by bistoury or engine bur; remove all dead bone, cleanse with tepid water, and follow with injections of aromatic sulfuric acid. Saturate cotton with the acid and pack the wound, allowing it to remain several hours to insure full effects.

*Ira B. Archer.*

I think it necrosis, and would treat it. After extraction the root should have been cleansed, the tooth filled with gold and replaced. I treated a tooth from April 29th to July 13th, 1893, and found on removal a piece of gutta-percha protruding through the root.

After extraction the tooth was treated and replaced. I think you did wrong, but it cannot be helped now, so the best plan is to open the fistula wider with rope cotton, then take a small piece of cotton, place in the center a piece of nitrate of silver, and after rolling into a ball (with the nitrate of silver in center), insert it in the fistula, and repeat every day or two. On removal of cotton always syringe with warm water and listerin or dilute carbolic acid. If necessary, scrape the bone. Aromatic sulfuric acid is also excellent—full strength or diluted. I seldom use peroxid of hydrogen, but always use iodoform and cajaput oil in treating dead teeth, applied on Brainard's embroidery wash silk.

*Dr. H. S. Abendschein.*

**Question 141.** *Lady, twenty years of age, takes excellent care of her teeth, but finds it impossible to keep them from discoloration. A black stain is removed with moose hide points, and in two months the black deposit again forms, regardless of her careful attention. What is the cause and preventive?*

Derangement of the stomach. Correct this. *F. H. Ellsworth.*

I think it an excess of iron in the system, but know of no preventive.

*Dr. H. S. Abendschein.*

Where ordinary tooth powders and soaps fail to prevent deposit, add sufficient bicarbonate of soda.

*W. E. Driscoll.*

Can not tell cause. To prevent it, use powdered pumice once or twice a week, and peroxid of hydrogen every day.

*J. H. Collins.*

Some article of diet or medicine must be the cause. To remove discoloration use tooth brush, pulverized pumice and sulfuric acid. Dilute acid one to twenty-five or thirty. This is a never-failing remedy and not injurious to the teeth.

*B. F. Arrington.*

Is the patient taking iron in any form? If so, this may be prevented by using an alkaline gargle of carbonate of soda or solution of ammonia before and after taking the iron. If there is no iron, it is undoubtedly caused by acidity of the stomach. Cleanse the alimentary canal with castor oil and keep normal by repeated doses.\* Administer internally aromatic spirits of ammonia, and use solution of ammonia as a mouth wash twice a day. Brush the teeth with fine pumice.

*Ira B. Archer.*

**Question 142.**—Will some one, having had experience with Spyer's surface cohesion forms, inform me how to avoid crushing out of shape the little prominences while closing the flask. I have used the forms several times and followed directions carefully, but each time the case comes out showing that in some unaccountable way the minute paphilliform prominences have been almost flattened?

I think the trouble is caused by using too great pressure without heating the flask sufficiently, and from an excess of rubber.

*T. W. Oderdonk.*

It is by too great pressure. In flasking have no plaster between the rims of sections that they may bear the pressure rather than compressible plaster, also be careful of surplus vulcanit.

*F. K. Heazelton, D.D.S.*

[Use Welch's automatic flask press, and little pressure and plenty of vents.—ED.]

#### A FEW COMMENTS.

In looking over the questions and answers in the ITEMS I can not resist commenting on Question No. 128, January, 1894, page 43: "What treatment is advisable when a lower third molar, partially erupted, is causing inflammation and annoyance?"

My treatment is always to remove the third molar. Several times I have removed it when no portion of the tooth was erupted, and when the muscles were greatly swollen and highly inflamed.

I use no alveola forceps for removing them, but have a small elevator, which I call a socket elevator. I hardly know how to describe it. There are none like it in the market. It is concave on one side and convex on the other—being (were it round) about as large as a small slate pencil, bent slightly about an inch from the end, toward the convex side. The end resembles a rounded point and is quite thin.

\*Take castor oil in beer.—ED. Q. D.

This instrument I can force between the neck of second and third molars into the anterior socket of third molar, and with a rolling motion of elevator the third molar can be easily lifted from its socket. The convex side coming in contact with second molar protects that tooth from injury. If the tooth be entirely hidden, the gum should be cut "cross shape," and the tooth can be easily reached.

I have thus removed many of these teeth, and do not remember of sacrificing a second molar. Simply lancing the gums is generally but temporary relief.

Will S. Kelly, Wilkesbarre, Pa.

As I have used nothing but modeling compound for impressions the last ten years, and consider it superior to plaster, I feel competent to answer Question 138.

If the querist will use a Harter or Elliott bib, with a good sized sponge inserted to hold it distended, and will use a large rubber bulb syringe with cold water for cooling the impression before removal from the mouth, he will probably have no further trouble from rocking plates. I use only No. 1 modeling compound (H. and R.). This does not require much heat to soften, and prevents liability of burning the mouth. It also makes a sharper impression. I never pull an impression from the mouth for full upper, but loosen it by drawing up the corners of the mouth. I used plaster ten years but discontinued its use when I found something better.

G. H. Collins, Atchison, Kas.

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"Causeways" invented by Dr. Clowes, reveals a condition that calls for admiration. When we were invited to see some of this remarkable work, we expected to find a foul odor attending it, but it was not so, and the secret is this: It is built on the gum so compactly that it shuts off the atmosphere, preventing fermentation. I have never met cleaner mouths, or so free from disagreeable odors as I found in cases where he built these causeways extensively on the vacancies of nineteen teeth. We condemn our fellows so unmercifully without a hearing, it is a marvel we do not learn some valuable lessons by experience. For instance, contrast this discussion with the dealings of this body when Dr. C. M. Richmond first introduced crown and bridge-work into New York. A big change in ten years. It is cause for gratitude; it shows progress. We take a little comfort to ourselves that we were the first on the published record commanding bridge-work, and were called some very naughty names for saying what we did. The late Dr. James White, editor of *The Cosmos*, refused us space in which to tell the profession what we knew of its value. To-day the most vehement opposer ten years ago of Dr. Richmond's invention in the New York societies is wearing a beautifully constructed and extensive upper and under movable bridge made by Dr. Richmond two years ago. Let us now have peace.

Review.

## PRACTICAL POINTS.

*By Mrs. W. J. Walker, Bay St. Louis, Missouri.*

**Trichloracetic Acid.**—The addition of two drops of oil of cassia to a three per cent solution is desirable. *Review.*

**Pulp Devitalization.**—Atropin, 1 gr.; arsenic, 2 grs. in lanolin. Apply very minute quantity. Seal in with amalgam.

*L. A. Faught.*

**Sterilization of Instruments by Cremation of Bacteria.**—Immerse in high-proof alcohol and ignite over spirit-lamp.

*H. A. Smith.*

**To Remove Discoloration of Teeth from Treatment with Nitrate of Silver.**—Apply iodide of potassium and pumice.

*S. D. Journal.*

**Root-canal Filling.**—With hypodermic syringe fill root-canal with chloroform and immediately insert gutta-percha point.

*R. T. Oliver.*

**Removal of Overhanging Gum on Third Molar.**—Burn away with trichloracetic acid. No hemorrhage or subsequent soreness.

*R. Ottolengui.*

**To Prevent Discoloration of Teeth from Amalgam Fillings.**—Varnish the cavity walls with Canada balsam or copal in chloroform.

*S. B. Palmer.*

**To Relieve the Immediate After Pains of Tooth Extraction.**—A single drop of nitro-glycerin, one per cent solution, in half a glass of cold water.

*E. H. Bowne.*

**To Bleach a Tooth.**—Apply caustic pyrozone by means of bibulous paper twisted on a gold probe. Move it around in the cavity, throwing on a current of air to hasten evaporation.

*Dr. Meeker.*

**Matrix for Proximal Cavity when the Adjoining Tooth is Missing.**—Fill the space with modeling compound; warm the metal matrix and press it in between the tooth and the mass.

*B. H. Catching.*

**Antiseptic Tooth Powder.**—To each ounce of a judiciously selected formula for tooth powder, have 6 grains hydronaphthol added, previously dissolved in a few drops of spirits of wine.

*J. Leon Williams.*

**Turgescence of the Gums.**—A little powdered copper-sulfate worked between the gum and the root of a tooth with a thin spatula will constringe the gum and lessen the turgescence in a day or two.

*Review.*

**Treatment of Pulpless Deciduous Teeth.**—Fill all cavities and grind off the teeth till completely non-antagonized, repeating when necessary. Exfoliation supplements the non-absorption of the roots.

*J. Y. Crawford.*

**Time and Temperature for Vulcanizing.**—Repairs and small partial pieces, 1 hour,  $295^{\circ}$ ; full dentures, 3 hours 15 minutes,  $275^{\circ}$ , or 4 hours,  $250^{\circ}$ . Low temperature and long time give best results.

*Dr. Southwick.*

**To Lessen the Pain from Arsenic.**—Mix equal parts of antipyrin and arsenic. The antipyrin diminishes blood-pressure and relieves the congestion caused by the arsenic, and therefore diminishes pain.

*G. C. Richards.*

**To Insure a Thin Rubber Plate with Smooth Surface.**—Saturate the model with water and dip it in a vessel of clean, melted base-plate wax, and you will require only the brush-wheel to finish the plate.

*Office and Laboratory.*

**To Make Gutta-percha Fillings Water-tight.**—Varnish floor and walls of cavity with common resin dissolved in chloroform. Quickly pack in softened gutta-percha with a cold plunger, and trim the borders with a thin hot instrument.

*J. G. Templeton.*

**Plaster of Paris Impression in Sections in Difficult Partial Cases.**—Set up edgewise in the tray thin plates of wax reaching from the floor of the tray to the teeth or gums. Fill carefully with plaster batter. Easily removed in sections.

*J. D. White.*

**To Insure Against Disturbance of Capped Pulps.**—Mix a little vermillion with the powder of the cement used in filling over an exposed pulp. In case of future operations on the tooth, the danger of re-exposing the pulp is averted by the red signal telling the story.

*Geo. Allan.*

**Gingivitis.**—After removal of all calcareous deposits in chronic cases, in addition to astringent and ant-acid washes, apply a 4 per cent solution of cocaine over the surface of the gums, and five minutes later a massage of oil of peppermint, oil of camphor, and aristol.

*D. M. Sabater.*

**Bichlorid of Mercury Solutions.**—One grain to  $4\frac{1}{2}$  ounces water gives a  $\frac{1}{2000}$  solution.

One of Wyeth's "Compound Antiseptic Tablets" dissolved in a pint of water gives a  $\frac{1}{1000}$  solution, and obviates weighing and measuring.

**Antiseptic Replantation.**—Immerse the extracted tooth immediately in eucalyptol. After filling root-canal, etc., dip again in eucalyptol and press home in the socket. Do not wash the socket, but replant in the fibrinated blood—nature's provision for healing by first intention.

*A. C. Hewitt.*

**To Relieve Acute Pulpitis.**—Direct the patient to hold water in the mouth, of the temperature most comfortable, gradually adding ice till actual contact of small lumps of ice will give relief. This will so reduce the congestion of the pulp as to enable it to absorb medicaments and be treated.

*E. C. Kirk.*

**Root-canal Filling:**

Iodol.....	gr. x.
Oxid zinc.....	gr. xx.
Ol. cinnamon.....	m5.
Carbolate of vaselin, q. s., to form stiff paste at 140°.	

*Van Woert.*

**To Remove Green Stains from Children's Teeth.**—Saturate a pellet of cotton with tincture of iodin and paint the surfaces of several teeth, carrying it with ordinary tweezers. Then with a small brush fixed in the engine and loaded with powdered pumice and borax, equal parts, the stains are easily removed.

*Chas. E. Francis.*

**To Obtund Sensitive Dentine.**—Apply rubber-dam and place in the cavity a pledget of cotton saturated with one of the essential oils. With chip-blower throw on hot air till oil is evaporated and cotton looks scorched. This is usually successful in white or light brown decay in the teeth of young children.

*H. Barnes.*

**Antiseptic Bath for Instruments:**

R.—Alcohol.....	3ij.
Hydronaphthol.....	grs. xx.
Keep in quinin bottle, or one similar. Dip instruments in and lay away to dry. Will not tarnish.	

*A. W. Harlan.*

**Mouth Wash in Gingivitis:**

R.—Tr. krameriæ.....	3j.
Tr. opii.....	3ij.
Tr. myrræ.....	3j.
Aquæ camph.....	3vij.

*D. M. Sabater.*

**To Prevent Adulteration of Aluminum from Die Metals in Swaging.**—Cover die and plate with thin, tough rubber-dam. Use no salt in the investment, and have no zinc in the boiler when vulcanizing rubber attachments.

*W. H. Steele.*

## ITEMS.

WHERE ARE WE AT?—A large sign in Allegheny City, Pa., reads: "Teeth extracted for 20 cents." Is it "sense" or "cents" the man most needs?

*J. Harbin Pollock.*

\* \* \*

Not to have an ambition to rise above those about us is to fail as a professional man. Not to keep pace with the improvements of our profession is a disgrace.

\* \* \*

In view of past victories may we not confidently expect that the etiology of other still obscure diseases, like erosion and pyorrhea, may be solved so that we can either prevent or successfully treat them?

*L. D. Shepard.*

\* \* \*

A Chicago clergyman announced from the pulpit, recently, that "Our dear sister, Mrs. X., is suffering from a serious and painful illness. She is being cared for by our dear brother, Dr. G. Let us all pray for her safety."

*Southern Journal.*

\* \* \*

When the mucous membrane of the mouth or throat is inflamed, rinse the mouth, and gargle the throat with pyrozone, then use a solution of boro-glycerin 1 to 10. This is effectual, and is a great soother.

*Review.*

\* \* \*

The meat of the English walnut is almost a copy of the human brain, plums and black cherries like the human eye, almonds like the human nose, and an opened oyster and shell a perfect likeness of the human ear.

*Scientific American.*

\* \* \*

However brilliant a dentist may be in professional attainment, he cannot long conceal from his fellows any dishonest propensities that may mar his character. The first elements of true success in dentistry, as in other callings, is to be true to ourselves and to our patients.

*Dr. Johnson.*

\* \* \*

HEMORRHAGE.—Epistaxis may be speedily checked by plugging the nostril with cotton dipped in a solution of fluid extract of geranium muculatum, one part to three of water. Hemorrhage resulting from the extraction of a tooth can be promptly arrested by filling the socket with cotton saturated with the same liquid. Hemoptysis can be promptly arrested by the hourly administration of the fluid extract of geranium in fifteen to twenty drop doses.

*Pacific Record.*

For an excellent varnish, procure a piece of clear amber, scrape or powder it, dissolve in Squibb's chloroform, which will take some time; add a little absolute alcohol to delay evaporation, and you have a varnish so hard that it will resist almost anything.

*C. F. Ives, in Inter.*

\* \* \*

The grip is again with us. Do not take quinine, it merely renders you liable to colds in the future. Take gelsemium pellets when the symptoms just come on, and follow it with rhus pellets. Take hourly doses, and rest in bed. Take Dr. Welch's grape juice as a food.

*Herald of Health and Homeopathy, San Francisco, Cal.*

\* \* \*

Where the pulp has been wounded I simply touch it with camphor. The alcohol in the camphor will evaporate, leaving the camphor itself, which is very healing and cleansing. Follow this with a little oxiphosphate, or cover it with gutta-percha, and go on with the filling.

*Dr. Spaulding.*

\* \* \*

If you can successfully save a tooth with amalgam or anything else, the pay should be commensurate with the services rendered, be it two, three, five or ten dollars. No wonder we hear the cry of "down with amalgam!" especially when we find it manipulated by the hand of carelessness or ignorance. It is in poor company and utterly helpless.

*E. G. Clark.*

\* \* \*

**EXCELLENCE.**—The end and aim of human life is manly excellence. That consists in development of body and spirit; all else is means; the formation of a manly character is the end. He makes the most of life here who becomes most of a man, does the most of human duties, and so has the largest quantity and highest quality of manhood.

*G. W. Warren.*

\* \* \*

Most of the progress of modern dentistry is due to capable, energetic and thinking men of the United States. Here was the first college established for the education of dentists; here was the first journal published for the interchange of ideas and experience; here was formed the first association for mutual assistance; and here "is the cradle of modern dentistry."

*Dr. B. D. Brodson.*

\* \* \*

To clarify wax, melt in hot-water bath; then remove from water bath and bring to a slow boil on the stove. Into the boiling wax break a fresh egg, and stir three or four minutes till the egg is thoroughly cooked. Strain through a piece of cheese cloth, to remove all pieces of egg, and you will have your wax as clean and pure as when brought from the dental depot.

*J. E. Harvey.*

**EDITOR ITEMS.**—The article from Dr. Flagg in the January issue of your admirable journal "hits the nail on the head." Every dental journal in the land would do well to copy this article. These are the men we are after—those who merely "squeeze" through college. A man who stands at the top of his class need never fear an Examining Board. It is to the interest of the colleges themselves to advocate the Boards; they will turn out better men, and have less trouble with them.

*E. P. Beadles, Danville, Va.*

\* \* \*

Dr. Robert L. Watkins, of New York, has caused himself to be inoculated with the bacillus of consumption, to prove his theory that a healthy person cannot contract the disease unless certain elements are present in the blood.

It has never been fully decided whether the man who picked up the bomb-shell that was almost ready to explode, and threw it over the parapet, was a brave man or a fool. We do not know that this applies in this case.

*Southern Journal.*

\* \* \*

A gentleman who was in Madrid for a number of years—Dr. Thomas—devised a plan for destroying pulps that seems so admirable that I want to tell it to you. He puts his arsenic, morphin and cinnamon together, and, having chopped up finely a quantity of cotton, mixes the medicament with it, and fills a bottle with the combination. It is ready for use whenever required, and is very comforting and quieting if the pulp is in a state of irritation. This preparation will not ooze out on the gum. I have been using it for five or six years.

*E. A. Bogue, in Inter.*

\* \* \*

One of the essentials in dentistry and medicine is to keep your instruments clean and thoroughly sterilized after use. Many a disease is transmitted by neglect.

An effectual and easy way to sterilize instruments is a bottle of bichlorid of mercury, into which dip each instrument after use. A glass of water with a few drops of oils of cinnamon and cloves and carbolic acid is good. I dip my instruments and then thoroughly dry by running them rapidly through a flame of alcohol.

*Luella Cool, D.D.S., San Francisco, Cal.*

\* \* \*

**A RESPONSIBLE APPOINTMENT.**—Prof. Truman W. Brophy, of Chicago, originator of "The Brophy Operation" for the radical cure of cleft palates, has been appointed Oral Surgeon to the Presbyterian Hospital, one of the largest institutions of its kind in the West. Prof. Brophy has devoted much attention to surgery, and has performed many important and capital operations with enviable

success. He is a born surgeon, cool, skilful, daring, enthusiastic, and many of his friends believe that he should devote his attention exclusively to that specialty. Already his surgical practice is large and constantly growing, and no operation is too formidable for him.

*Practitioner.*

\* \* \*

An exceedingly nervous patient came to me with a fully exposed nerve. After several days' treatment, I capped and filled with cement. In two days my patient returned with the tooth aching. Removing the filling, I treated again for a few days with carbolized resin till inflammation was wholly reduced. I then made a preparation of chloro-percha, oil of cinnamon and carbolic acid, completely covering the exposed part. Heating my hot air syringe, I evaporated all the chloroform and filled with cement. No trouble has ensued since refilling, several weeks ago.

*Luella Cool, D.D.S., San Francisco, Cal.*

\* \* \*

The virtue of an amalgam consists in its absence of change. None of the agents used in filling has excited so much discussion pro and con. No material is in more common use, and many cases are presented where such a filling seems the only one practicable. An amalgam that will retain its color and not shrink, properly manipulated, is second to no other material as a tooth preserver. I have seen fillings of this material that had been in constant use for twenty years, and apparently in as good condition as at first. Of course, much depends on the way it is manipulated. Too much mercury is sure to destroy the setting properties, while too little favors the disintegration of the filling. *Dr. B. D. Brodson.*

\* \* \*

Many obtundents are advertised in our journals and by circulars. I think you will find none of them equal to pure alcohol introduced into the cavity on a pedgeot of cotton for a moment, and then the cavity thoroughly dried with hot air. Pure wood creasote is also excellent, used in the same way. Try these alongside of any of the secret concoctions and see which is the best.

FUSIBLE METAL.

Lead.	Tin.	Bismuth.	Melts at
1 part.....	1 part.....	1 part.....	250°
1 " "	1 " "	2 " "	200°
10 " "	16 " "	8 " "	300°
16 " "	14 " "	8 " "	280°
1 " "	1 " "	2 " add a little mercury	112°

The formula of Watts' metal for cast plates is: Tin, 40 dwt.; Silver, 8 dwt.; Bismuth, 16 grains. *J. E. Davis, Columbus, O.*

**COLLEGES AND JOURNALS**—Canada has a population of only 6,000,000. When our neighbors had 25,000,000 there was neither a dental college nor a dental journal in the Republic.—*Dominion Dental Journal*.

Neither was there anywhere else in the world. England had nothing of the kind, and did not establish either till long after America had marked out the way. The first dental college, the first dental journal, the first dental society, and the first organization of dentistry as a profession were in America. At the present time she has by far the greatest number of schools, journals and societies of any country in the world, and she has a greater proportion of dental graduates among her practitioners.

*Practitioner.*

\* \* \*

**DENTISTRY vs. MEDICINE**.—In a conversation with one of my friends of the medical fraternity he made this remark: "If the standard of medicine can be raised, and it has been, I should think that of dentistry could be also." Now, I believe that a great many physicians look at dentistry in this patronizing way, and I have wondered how much the proposition some have advanced of taking us into the good old profession of medicine as a "specialty" has had to do with it. Dentistry can afford to stand on its own merits the world over, and when we remember the progress our calling has made in the past, and the great discoveries and inventions in other directions made by its members, we ought to be proud to call ourselves by the good old-fashioned name, "Dentist."

*C. B. Plattenburg, Chicago.*

\* \* \*

**PARALYSIS CURED BY LANCING THE GUMS, ON A LITTLE GIRL OF TWENTY MONTHS**.—The little one showed fever and diarrhea, which the mother thought came from the teeth. A physician being called in, prescribed for the fever and for the diarrhea. After two days the child became paralyzed in the left leg, and suffered with an inactivity of the kidneys, for which nitre was prescribed with beneficial effect. This, however, lasted only two days. Dr. Smith found none of the teeth had erupted, and reported the fact to the physician, who said he could not see any possible connection between that fact and the disease of the child. Another physician being called in, thought the condition might be caused by the teeth. Dr. Smith requested the privilege of lancing the gums. He made a deep incision over the cuspids on the right side. The second day the child could stand on its foot, and the third day could walk, and now there is nothing apparently wrong, except a slight numbness in the foot.

*Cosmos.*

A lady patient sat in a dentist's chair about three hours one afternoon to have a tooth filled. The operation was painful, but, according to the dentist, the patient made no unusual complaint and appeared to bear the pain heroically. She even paid part of her bill before leaving the office. When her husband came home at night, however, and learned of the ordeal she had passed through, he was so incensed that early the following morning he went to the office of the dentist, and waiting for him in the hall gave him a "sound thrashing." The dentist was accordingly confined to his room, while the husband was arrested and locked up in a police station. Both parties claim that "the end is not yet." We suspect that the whole facts in this case have not come out, and it probably will be as well if they never do.

*Review.*

\* \* \*

At the Columbian Congress Dr. W. G. A. Bonwill filled a left lower first molar with amalgam. The whole crown of the tooth was decayed, but the pulp still living in the root. Having excavated the cavity, he made retaining-points to hold the filling, and clamped to the sides of the tooth pieces of vulcanite to support the filling while it was being inserted. As each piece of amalgam was inserted, the excess of mercury was squeezed out of it by pressing it tightly to place with an instrument, the point of which carried a pellet of bibulous paper.

Dr. Bonwill claims that such a filling is as useful or more useful than a gold filling would be in the same tooth; that it will last longer, while it is not so expensive to the patient nor so exhaustive to the dentist.

\* \* \*

**VITALITY CONDITIONED.**—The native inhabitants of Greenland and Labrador, living almost exclusively on animal food, preferably that which is fat, have fine teeth almost entirely free from decay. The same is true of the Gauchos, a tribe of cattle-breeding people inhabiting the great upland plains of South America, and subsisting entirely on a meat diet. This same people, living in another part of the country, in towns, and consuming a mixed diet, suffer considerably from decay of the teeth. The Scotch people, who eat large quantities of oatmeal, and the Chinese, who live almost exclusively on a vegetable diet, have, as already mentioned, very poor teeth. The only conclusion which can be drawn from a careful examination of the foods of all nations is that vigorous people may be perfectly nourished on a great variety of food materials, while the most carefully selected diet will not maintain a high standard of vitality among a people where there is a prodigal waste of nervous energy.

*Dr. J. S. Williams.*

## EDITORIAL.

### THE LIFE OF THE TOOTH.

Some assert there is no nerve substance in a tooth, outside of the pulp. But if there is no nerve there is no life; for where there is no nerve there is no life. And they assent to this also, declaring there is no life or circulation of living substance, and no sensation in either the enamel or dentine. They believe the seeming sensation felt in the dentine, in excavating or otherwise, is only a sensation in the pulp cavity by pressure made on the pillars of the dentine, reaching the periphery of the pulp, and that here, and here only, is the nerve and the life of the tooth. Others think this sensation is by pressure on the fluid existing between these pillars, and which extends to and from the pulp, thus causing pain in the pulp, and that the presence of this sensation in and on the dentine is only imaginary. Both are on the theory that the tooth structure is only an outgrowth of a membrane—a hardening or calcification of the dermoid structure, something as are the nails and hair, and the scales of fishes. But the tooth is more than an appendage, an excretion, a termination and hardening of a fleshy substance. It is an independent, compound, living structure. Though its origin is largely of the dermoid membrane, it is not wholly so; nor is it simply a continuation of it. It is an organ, just as truly as the liver or the kidneys are organs. It has a regular system of circulation of nerves. The shafts or pillars, of which the dentine is made, are a bony frame-work for this delicate, vital substance, which ramifies its structure. Because this life fluid is not here clothed with a fleshy coat, as when running through the muscles, is no proof it is not nerve. What is a nerve? Is it a rope or a bundle of ropes? No; this tough substance we handle when we "take up" in surgical operations is only its protection. Is the pulpy, gray matter within this coating of muscular rings the nerve? No; this is only that in which the nerve exists. Is the limpid fluid accompanying this pulpy substance the nerve? No; we can

hardly say that this has even organization, and yet there must be organization for it to have life. Yet certainly the nerve has life, and changes its character when dead. Then what is the nerve? and what is that something that gives to it such delicate sensitiveness, and sometimes such tremendous pain? I do not know—do you? It is certainly neither of these; though it may be said that, so far as the physical senses can perceive, the nerve is all these combined. But if this be so, shall we say that when this vital something is deprived of its tough coating, as when it passes through the common bones, it is no longer a nerve? No physiologist says that. And shall we say it is not a nerve when it is deprived of its pulpy material, and its fleshy coat is exchanged for a tube of dentine? We think it is still a nerve, for anything in the system that is the medium of sensation is a nerve. Nothing else has sensation. This minute, limpid fluid, which we find in the "lakes" and the tubes of the tooth, communicates both life and sensation. Therefore, it may be well called nerve substance. We cannot explain how this sensation is produced or conveyed here or in other tissues; yet it is a fact; and the phenomena is the same in the tooth as in the flesh. We are told that in the tooth this delicate fluid only conveys an impression to the nerve of the pulp, and has no feeling of its own. What is the office of any nerve but to convey impressions? It has no sensation in and of itself anywhere along its line. It is only the medium of sensation. When you cut your finger, you say your finger pains you. It is a proper expression; and yet the real pain is at the other extremity of the nerves of the finger—in the brain. We say the eyes see, the ears hear, and the nose smells; and this language is well understood; yet these organs are only mediums to carry impressions to the brain; they have no sensation of their own. The brain is the organ that feels, sees, hears, and smells. So the tooth, in the same sense, has no feeling; yet, in a proper sense, we have feeling everywhere there is life. Some suppose the minute cavities found in the dentine—lakes, as we call them—are "faults," as the geologist would say. But they are not faults, for they are no abortion of structure. They exist for a purpose, probably as reservoirs of supply, as do the "knots" in the sympathetic or ganglionic nerves.

There is also a system of blood-vessels running through the dentine. Wherever there are nerves there are blood-vessels. If there are no blood-vessels, how can we account for the changes of color in a live tooth?—especially the marked change sometimes seen of a pinkish hue in inflammation and of a darker hue in its congestion? In fact, how could it become either congested or inflamed if there was no blood circulation? But you say, if blood circulates through the tooth the color of the blood would appear all the time. No; there are other tissues, as the eye, where there is circulation of the white corpuscles of the blood and no color, except in a state of irritation, when the red corpuscles appear.

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"Oh! if he were only well balanced," said one to another; "but really he seems fitted for only one thing; and how homely he is."

My dear sir, well balanced and pretty people are not plenty, especially among the men. And when you find them, do you find many who are intellectually strong and specially successful? Most of our successful men are those in whom some great consuming thought and persistent purpose have bored a hole right through from the soul to the surface, and seized the nose, or enlarged the cheek bones, or protruded the forehead, or disfigured the mouth, or swelled the eyes, or done something to make itself prominent in the physiognomy to the dwarfing of something else. This is not to the taste of our esthetic artists. Such men are not well balanced either in features or character, sometimes they are awfully homely; but they are students, and can do mighty things in their line, though they may be weak somewhere else. Nature is not often artistically correct; it gives few models of what we call perfection.

We admire pretty looking women, and give them compliments and nice places. They are "as smart as a whip," as "sweet as a peach," "as blooming as a rose," and wonderfully clever; but pretty men—well, they will do for belles and dudes, and might fill some other niche, if their self esteem did not spoil them; while

pretty women generally retain their good sense. We seldom give preferment and responsible position to pretty men. We want strength, and special strength in some given line, without much question as to their fitness elsewhere. Such men may not be good looking, because this one feature of their character we seek is so prominent we see it in their physiognomy.

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### A GOOD OLD AGE.

Some people do not live to old age, or even to mature age. Accidents, unavoidable weaknesses and pestilence, of course, have their victims, but most do not deserve to live long. Continually breaking the laws of their being, they ought not to, and "they shall not live out half their days." They become wrinkled up old men, decrepid, shattered and comparatively useless while they ought to be in their prime. Neither the doctor or the criminal law has to kill them; they kill themselves. There are a few exceptions. Either they have unusual natural powers that defy abuse, or they become specimens preserved in whisky or smoke, kept unburied as curiosities.

If you would "live long in the land which the Lord thy God giveth thee," behave yourself. You know how; we all know how. But we are so frequently venturing on the ragged edge of forbidden ground that we fall when we least expect it.

Learn of men of good old age. One of the first rules they will give you is: *Moderation in all things innocent, prohibition in all things injurious.* Do you think this would make a tame life? No; you would have the highest and most permanent enjoyments. Voluptuousness, revelings and drunkenness, and the excesses and irregularities which lead to them, disturb the harmony and free flow of the spirits, unbalance and confuse the intellect, and make a hell of the passions. They produce artificial and injurious appetites, corrupt and enervate the will, and rob us of our strength, dignity and manhood. They debauch the conscience, warp the judgment and produce false views of life. They make us fickle, unstaple and dissatisfied with the duties, pleasures and successes

of a normal life, and give us a gnawing craving for excesses which ruin us. While we are pursuing them they pursue us, till we become exhausted, effeminate and enervated, incapacitated for life's truest enjoyments and for the rich peace, restfulness and satisfaction of a ripe old age.

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Dr. W. S. Elliott, well-known as one of our best and ablest men, has answered four hundred written questions for the privilege of practicing in Trenton, New Jersey. We have learned of a good and able man in Massachusetts whom its unjust law has fallen on, and put under bonds not to practice. He did not feel called on to submit to the imposition. He has "grit," and it will be interesting to see how it will come out.

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#### PROMPTNESS AND METHOD.

If in the greatest whirl of business we would be calm and collected, in the midst of the greatest turbulence we would have rest and quiet, and in the most difficult undertakings have enjoyment and success, there must be promptness and method. They economize time, arrange details, and insure perfection; they relieve the memory, discipline the mind, and enlarge the understanding; they bring into order all forces, subdue opposition, and make us master of our situation.

It is folly to say we have no time to reduce work to method and cannot be prompt in execution—that too much presses on our attention, thwarting all effort at system and preventing attention to details. Rather let us calm ourselves from the nervous strain and the confusion and wild haste that hurry and worry have produced, and seek relief by sifting and arranging and putting in order our multifarious duties according to their value, with distinctness, regularity and carefulness. When once our table is clear, by making each day a completed life—a time and a place for everything, and everything in its time—we shall know what comfort is.

## INERTIA.

I know a man keeping a confectionery shop who ought to be an object lesson to some dentists. For twenty years he has kept it in the same place, without improvement or change. It does seem to me everything is just as it was ten years ago. It did look new and nice at first, and his newly-made taffy and pop-corn were tempting. All his candies had a snap and fresh flavor to them, and there was taste in their display. But in a few years the man got rusty, and everything about him became dusty and shop-worn, even the candy looked rusty and stale. Thrift and his best customers and his bank-book left him long ago, and he has lazily moved along in the old rut for years, except when sitting cross-legged in the corner.

"Why do you not come in once in awhile, as you used to?" he asked of me one day.

"Well, I suppose I ought to," I replied, "for it does remind me of old times. Everything is just as it used to be. I do believe each candy jar is just where it was ten and fifteen years ago, and just as full, and bears evidence of just the same amount of use, only more so. Of course, you must have sold some toys in ten years, but really every one is there as it was then, the same in kind and number. Those ball bats and walking canes are the same, and precisely in the same place. Mr. Jones, you would hardly know yourself if you had a thorough overhauling here and a good cleaning up, especially if you had a modern variety of candy and toys and a new dress."

Mr. Jones took all this as a good joke, and laughed right heartily. And though that is two years ago, he is still cross-legged in his accustomed corner, smiling at the strange breeze that then came over him. It didn't disturb him in the least. You cannot materially change a man's surroundings unless you can change the man, and the longer he remains unchanged the harder it is to change him or his habits.

## TRY IT.

Stand off and look at yourself and your surroundings, once in awhile. Look impartially at yourself as at a stranger, and see how you like the picture.

I went into my office once in this way, and was ashamed of everything I saw. I said to myself, "If I had such a slovenly-looking, poverty-stricken office as this I would disown it." Crossing over to the mirror, I saw such a crazy, disheveled, dirty-looking fellow, I left in disgust. Going home, I said :

"Here, wife, take the scrubbing-brush over to Second and Main, second-story front, and clean out that dental office, and clean up the dentist, too."

Said she: "Have you finally come to yourself? It would be an insult to ask even Bridget to do such work as that. Better by far 'clean it out' literally, and send everything to the junk-shop and yourself to the scrubbing-house, and begin anew."

"Good gracious," I replied; "has it come to that?"—and off I hurried to the carpenter and furniture dealer, and scrubber and painter, while the junk-man was ordered to take away everything he could find for old metal and rags. "A new outfit, if you please," I wrote to my dental dealer, adding: "everything as for a beginner; I am worse than burned out; and see that everything is first-class."

As for the shabby-looking dentist, he rushed to the bath, and from there to the barber and then to the tailor, and said to each: "Do your best."

"Cost money?" It did cost money, but it was the best investment I ever made. It renewed my business, it renewed my youth, and revolutionized my life.

Ah, it does us good to stand off and look at ourselves once in awhile. The trouble with me had been I had not done it once in awhile, and had, therefore, got so far from self-examination that I did not know where I was.

Perhaps we are giving too much editorial space to encouraging young dentists, and those entering our profession, to be thorough, intelligent and of a high order of morals. But it is our anxiety to see the profession better, and our belief that these short articles help to bring it about. The time is rapidly coming when dentists will have to be gentlemen in the best sense of that term, and, of course, this includes goodness, and goodness associated with intelligence and conscientious thoroughness, so that the lazy, ignorant, ungentlemanly dentist will have no place.

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There are few occupations which give better opportunities for intellectual improvement than a dental practice. Of course, unless the spirit of improvement is in us, opportunities will go to waste, time will be squandered, and every thing precious will disappear—even our dental practice. If we are thoughtless, lazy and loose in our ways, leisure hours will hang heavily on our hands, and any thing and any body will be invited in to while away the time with us. Idlers soon know their boon companions, and they are sure to come and to bring the devil with them, till the dental office is made the rendezvous of dissipation and questionable conduct. But with the will to improve the frequent opportunities offered by leisure hours, we will soon find that we have no time to waste—all will be valuable and appreciated. The dental office will be turned into a studio and an industrial school. Though we will invite interruptions by patients, we will every now and then find ourselves saying, "Blessed be the rain, for it giveth sweet hours of study."

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In the struggle for supremacy, don't forget to be gentlemanly. Those in the rear look to the leader for lessons in courtesy as well as in therapeutics. Leaders rise from the ranks, and are prone to remember the conduct of the one who held first position. Let that remembrance be that of gratitude—not scorn.

## NOTES.

The total product of tin in Australia up to 1892 amounts in value to \$92,979,655.

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A seven per cent solution of acetic acid is a more effective germicide than bichlorid of mercury.

\* \* \*  
Bromidia is justly recognized as one of the standard preparations of the day, and as a true nerve sedative it is unsurpassed by any single remedy or combination.

\* \* \*  
Sir James Crichton Browne, the English specialist, is a believer in the theory that the coming man will be toothless. He declares that over 10,000,000 artificial teeth are annually fitted in the mouths of Britisher.

\* \* \*  
STIMULANTS AND HEMORRHAGE.—Never give stimulants in hemorrhage. The faint feeling or irresistible inclination to lie down is nature's own method of circumventing the danger by quieting the circulation and lessening the expulsive force of the heart, thus favoring the formation of clot at the site of injury.

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GOVERNMENT MEDICAL SCHOOL.—Secretary Lamont has adopted the recommendation of Surgeon-General Sternberg, and ordered the establishment of an army medical school at Washington, for instruction of approved candidates for admission to the medical corps of the army.

\* \* \*  
The bony frame work of the body lasts much longer after death than the flesh; and the teeth are found intact for a long time after the other bones have returned to dust. This is especially true of the human teeth. After hundreds of years of exposure they are found intact, even though they were partially decayed while alive in the mouth of the wearer, for caries itself seems to cease after the death of the body.

\* \* \*  
Dr. A. W. Harland leaves for Europe about the middle of this month. He goes to enjoy a well-earned rest. His labors on the Dental Congress during the past year have been phenomenal. Few men could have carried the work through so successfully as he, and he deserves, and will always have, the thanks of the profession for it.

**BAD FOR SMOKERS.**—A careful record has been kept at Yale College during the past eight years, with reference to the physical condition of non-smokers as compared with smokers. It has been found that non-smokers are 20 per cent taller, 25 per cent heavier, and have 60 per cent more lung capacity than smokers. A recent graduating class at Amherst College presented a similar difference in favor of non-smokers, who had gained in weight 24 per cent over the smokers, and in height 37 per cent, and also exceeded them in lung capacity.

\* \* \*

Promptness produces much economy of time and strength and very greatly increases our reputation. "A time for everything and everything in its time," not only gives greater facilities for work, but makes work much easier and more pleasant. Putting labor off that should be done now "to a more convenient time," generally robs it of enthusiasm and makes it weigh heavily on our hands, and perhaps causes its entire neglect. Such a loose way of living makes confusion, indifference and loss without compensating advantages.

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**CHEAP TOOTH BRUSHES.**—The *American Druggist* is making warfare on cheap tooth brushes, pronouncing them not only unsatisfactory to the user, but positively prejudicial to the health. "They are," the magazine states, "responsible for many obscure throat, stomach and intestinal ailments. The bristles are only glued on, and come off by the half dozen when wet and brought in contact with the teeth. It were far better," the *Druggist* concludes, "for the user to pay fifteen or twenty cents more for a brush well made, than to risk the dangers attending the use of the cheaper make-shifts."

\* \* \*

There are some queer questions regarding the teeth not generally broached, or if mooted, not altogether settled; or if they seem to be settled, do not stay settled; such, for instance, as the following:

How much circulation is there in a healthy tooth; and what is the nature of that fluid?

Is there any circulation in a dead tooth while still in the mouth?

Is there any change in the constituents of a live tooth?

Of what does the life of a tooth consist?

What is the cause of sensitive dentine?

Why is a tooth more subject to caries while alive than when dead?

Why is a tooth more subject to dissolution in than out of the mouth?

In a late First District meeting, Dr. M. L. Rhein, of New York, demonstrated the use of potassium and sodium (Schreier's preparation) in cleansing root-canals. The patient, a dentist, had a superior second bicuspid in which the pulp had died under a gold filling four years ago. On opening into the pulp-cavity, two canals were defined. The cleansing substance was introduced on a delicate bristle a number of times, till the canals were thoroughly freed of their contents, and they were then syringed with mercury bichlorid dissolved in hydrogen peroxid, and then dried out.

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**"How to REST.—**To understand the way to rest is of more importance than to know how to work. The latter can be learned easily; the former it takes years to learn, and some people never learn the art of resting. It is simply a change of scenes and activities. Loafing may not be resting. Sitting down for days with nothing to do is not restful. A change is needed to bring into play a different set of faculties, and to turn the life into a new channel. The man who works hard finds his best rest in playing hard. The man who is burdened with care finds relief in something that is active, yet free from responsibility. Above all, keep good-natured, and don't abuse your best friend, the stomach."

\* \* \*

Do not neglect details; it is the ruin of many a business. Keep everything carefully in hand, and do the smallest things with promptness and precision. He who has the patience and exactness to become master of details gradually builds a monument. Yes, better than a monument—a home. His very occupation will so absorb his zeal and affections, that where his work is there will be his home; the center of his joys and triumphs, and his life's contentment and rest. He has mastered details and thus mastered himself, his business and his sphere.

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Who is handling the *Southern Dental Journal* now? In its editorial items we have these: "Dr. C. N. Johnson has retired from the *Dental Review*." We supposed Dr. Harlan had retired and Dr. Johnson was left alone in his glory.

"Catching's Compendium for 1890 will be out about February 1st." We supposed this would be "Catching's Compendium for 1893."

"We dislike to drop your name from our list, and if you force us to do so, you will be as great or greater loser than we." As great loser than we, as greater loser than we.

Words are fabrics used to make garments for thoughts, and every writer is a tailor. Some make wretched choice of their cloth, and woful fits; their ideas are not brilliant, hardly important, and they are dressed so shabbily few care for them. If we would be heard and prized we must give the world our best, both in substance and appearance. And the greater our effort to give our best the better will be the gift, and the better remunerated will be the giver.

\* \* \*

As ground for instructing athletes to abstain from alcohol while training, Benjamin Ward Richardson says: "It will undermine all the qualities on which you depend for success; will injure your precision, your decision, your presence of mind, and your endurance." From this it would follow that no one should use alcohol in whose business precision, decision, presence of mind, and endurance are of importance. We should be glad to have any useful business suggested where any one of these qualities is not important.

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Dr. Weeks, of Minnesota, urges the importance of a student entering college without preliminary instruction in an office. Teachers in colleges are more competent to start a student than men in regular practice, and the chair of operative dentistry should direct operative technics; it is important that technical training should be sequential. He urges the necessity of making and sharpening instruments, and advises the use of the engine the first year.

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The teacher who appeals chiefly to the memory of his pupils, filling their minds with bare facts, data and theories, produces only encyclopedias, and they come into the arena of life cumbersome, incompetent, learned ignoramuses, stilted adventurers, without the culture, skill and practical qualifications for remunerative, responsible and successful positions. To produce a well-cultured, well-balanced and well-developed mind, and a character well rounded, harmonious and strong, the mind must be trained to examine, select and weigh facts, every mental and moral faculty must be taught to convert knowledge into wisdom, and wisdom into practical usefulness; the nerves must be cultured to hear, see and feel with the utmost promptness, accuracy and discrimination, and the fingers skilled to manipulate with the nicest precision and intelligence; the passions and will must be harnessed to obey conscience and reason, and the whole man be made manly, noble and honorable.

## FOR OUR PATIENTS.

### THE WRONG TOOTH.

"I find that sometimes a man does not know what ails him as well as he thinks he does," said a gentleman the other day. "I had a grumbling tooth—a pretty hard grumbler, too—and went to my dentist to have it out."

"Here, doc," said I, "just take this tooth out. It has been pestering me a whole month." And I sat down in the dental chair as brave as a hero.

He examined it, and said quietly, "You must not have that tooth out—I can save it nicely. There cannot be much ache there."

"I want it out," I reiterated; "I know how much it aches. I have no patience with an aching tooth. Besides, it is a wisdom tooth, anyhow."

"But I can't take it out; it would be wrong."

"Well, I guess," said I, indignantly, "you will take it out if I say so."

"No; I would not take it out if you would give me ten dollars," emphatically.

"Good by," said I, and went to another dentist. When it was removed I felt quite satisfied, for I found it considerably decayed.

"I'll change dentists now," I said to myself. "A man that assumes to know more about my toothache than I do myself, can be spared."

But the next day I changed my mind. I had the toothache as bad as ever. I stood it three or four days, then returned to my first dentist. "I was mistaken about the locality of that toothache, after all," I frankly confessed. "It is the next tooth; and I am sure now for it has become very sore."

"Well," said he, "you had better let me look them all over, and judge for myself what is best to do."

"Oh, but I am sure now, for it has a large hole in it next to where the extracted tooth was, and is very sore. You can't save it."

"But," said he, "though you are satisfied, I must be also."

The upshot of the controversy was, I got mad again and went back to the other dentist. Out it came, without a word of protest, for he said it was not his business to quarrel with his patients.

Will you believe it? I had the toothache as bad as ever. But this time I had him; and though I had sworn I never would go back to that first dentist again, I went as meek as any lamb. I had to, for my wife made me go. "Now" said she, "you have made a fool of yourself twice, you are not going to again; I am going along to see that you behave." So off we went, promising anything she imposed on me; saying to myself, "All creation can't make me believe I am wrong this time, for it is the only tooth left on that side; and it is so badly decayed it is not worth anything, anyhow." The tooth-puller had broken fully one-third of the crown off in extracting its mate. So I allowed myself to be taken along without resistance.

"Here, doctor," said my wife, "my husband has made a fool of himself twice, and I have come with him now to see that he does not do so again. Now, sir, sit down in the chair, and let the doctor do as he pleases."

I sat down, feeling sure he would say, "Captain, you are now pointing in the right direction." But instead of that, said:

"Now then, we will make thorough work, and get at the root of the trouble."

"There is no more controversy now, doc; I—"

"There, there," broke in my wife, "that will do. I am here now; and I have your promise that I may be boss, this time."

"But I was only going to add that we can't disagree now, for it is the only tooth left on that side, and it is aching terribly."

"Are your other teeth in good condition?" inquired the doctor meekly.

"Oh, yes; but at any rate take this tooth out first, and then, you may fill every tooth in my head, if you want to. But don't go poking round till you get this tooth out."

"No, I cannot take that tooth out till I have—"

"Now see here, doc—"

"Husband, you must not say anything. You said—"

"But, wife," I broke in, "he will get me mad again, and then—"

"There is no 'then' about it," said she; "you will do just as you promised. Now, sir, put your head back."

The doctor had scarcely begun to look my teeth over when I interrupted with:

"Why, doc, what are you looking up there for? Do you suppose that I cannot even tell which jaw aches?"

"I thought I was going to have my own way? If—"

"Yes, doctor," interrupted my wife, "you are, if we have to tie him in the chair. Now go on with your examination."

"Mr. Jones," said the doctor, after a moment's search, "that tooth you want out does not ache at all; and—"

"By all that is great and holy, I won't stand that!" and I stamped on the foot piece of the chair so hard it broke. I rose to leave the chair, and would have done so, if my wife had not grabbed me with such a grip I could not.

"Husband!" said she, in a tone I knew meant business; "you leave this office till the doctor is through and you will repent it."

"But, great Ceasar!" I gurgled, as she let loose a little from my throat, "did you hear him? The—"

"That will do. Go if you dare, but—"

"Yes, it was 'but,' for if I had ever been in a vice I was certainly in one now."

"Good gracious—"

"Mr. Jones, I can convince you I am right," remarked the dentist, as calmly as ever.

"How?"

"Take this soft wax and press it carefully where I tell you."

"I'll do it, if you will then let me have my own way."

"All right. Press it gradually up on the upper right wisdom tooth."

"Heavens and earth, thunder and lightning, hades and—doctor, doctor, take that stuff out quickly!—that's the tooth."

"And that tooth was removed. It proved to have been the cause of all my trouble."

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#### A NEW MINERAL DISCOVERED.

Incidentally to an attempt to produce diamonds by artifice, an American chemist has recently discovered a mineral hitherto unknown—the hardest substance in existence with one exception. It is called "carborundum."

The inventor, for making his gems, obtained from a concern in Lockport, N. Y., the use of its aluminum smelting apparatus. In reducing that metal electricity is employed, generating an enormously high temperature. As a chance experiment, he put into the furnace a lump of clay and a piece of graphite, which is pure carbon. The result was some small wine-colored crystals of rhomboidal shape. On examination it was found that they were harder than sapphire. Diamond is the hardest of natural minerals; sapphire comes next, and then ruby.

Chemical analysis proved that the crystals were composed of carbon and silicon in a combination hitherto unheard of. It does

not occur in nature. The process above described, repeated again and again, produced the wine-colored rhomboids every time. A company has been formed to manufacture them for polishing all sorts of things, even diamonds. They are crushed to powder like emery and made into wheels with a cementing compound. The demand for them is already greater than the supply. At the office of the Geological Survey this new grinding material is to be tried in the preparation of thin slices of stone for microscopical examination. These films of rock—granite, marble or what not—are reduced to such thinness that one can read through them.

Mr. Kunz, the famous expert in gems, believes that most of the precious stones will eventually be produced artificially. All of them are very simple in their composition—the diamond, for example, is pure carbon; and the ruby is almost pure aluminum—and the problem is merely to make their elements crystallize properly. Chemists, who have hitherto confined their attention to taking things apart, are beginning to learn how to put them together again. The English professor, Maskelyne, manufactured diamonds in his laboratory several years ago, though they were too small to have any commercial value. Emeralds have been produced accidentally at the pottery works of Sèvres, France.

*Philadelphia Times.*

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### THE MARVELOUS BACTERIA.

The reproductive power of many species of bacteria is so marvelous as to be entirely beyond belief. Prof. Lau says that he has experimented with several different forms of these minute organisms that were capable of doubling their number every hour.

When in good condition an average specimen of bacterium will produce 16,777,200 individuals of his kind in the short space of twenty-four hours. In forty-eight hours the offspring from a "germ" measuring not more than one-fifteenth-thousandth of an inch will have increased till the bulk cannot be put into a half-pint measure, the total number of individuals then exceeding 281,500,000,000. If these deductions are correct (and scientists of ability have proved that they are as near as such figures can possibly be approximated from the very nature of the experiment), is it any wonder that "germ" or bacterial diseases are so hard to control?

Dr. Adametz, the Swiss savant, says that there may be more living, breathing creatures in a pound of cheese than there are inhabitants on the globe.

*Dental Headlight.*

## NOTICES.

The 23d annual meeting of the Kansas State Dental Association will be held at Topeka, April 24-5-6-7, 1894.

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The next meeting of the Louisiana Dental Society at New Orleans, February 7th, is expected to be the best ever held.

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The following are the officers of the St. Louis Dental Society: President, Dr. J. B. Newby; Vice-President, Dr. J. B. Vernon; Recording Secretary, Dr. F. F. Fletcher; Corresponding Secretary, Dr. John G. Harper; Treasurer, Dr. A. J. Prosser.

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We have just received notice of the death of Prof. Charles H. Osgood, of the Boston Dental College. Dr. Osgood has been a prominent and efficient worker in that college, and in the dental profession generally. In New England he has been prominent for many years.

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Dr. A. W. Harlan has retired from the editorship of the *Dental Review*. He has done excellent work and brought that journal from its incipiency up to the first rank among dental journals. Dr. C. N. Johnson, who succeeds him, is known as a clear, racy, practical writer, and will, no doubt, keep the *Review* up to its present position of excellence and popularity.

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The time of the next meeting of the Southern Dental Association is changed to Tuesday, July 30th. *D. W. Foster.*

The Vermont Dental Examiners will meet at White River Junction, March 21st, 1894.

The officers of the Ohio Dental Society are: President, Charles Welch, Wilmington; First Vice-President, William H. Todd, Columbus; Second Vice-President, Henry Barnes, Cleveland; Secretary, L. P. Bethel, Kent; Assistant Secretary, L. E. Custer, Dayton; Treasurer, C. I. Keely, Hamilton.

The Vermont Dental Society meets at White River Junction, March 21st, 22d and 23d, 1894.

The St. Louis Dental Society holds its annual clinics on March 20th, 21st and 22d, 1894.

The thirtieth annual meeting of the Illinois Dental Society will be held in Springfield, May 8th, 9th, 10th and 11th, 1894. An interesting program is in course of preparation. Practitioners of Illinois and of adjoining States are cordially invited.